

1778
JOURNAL OF
CHILD PSYCHOLOGY
and PSYCHIATRY
and allied disciplines

Official ORGAN OF THE ASSOCIATION FOR CHILD PSYCHOLOGY AND PSYCHIATRY

LIST OF CONTENTS AND AUTHOR INDEX VOLUME 16, 1975

Dear Reader:

I am pleased to bring to your notice the aims and scope, table of contents and author index of recent issues of this journal together with an invitation to consider submitting, for editorial consideration, suitable manuscripts for the journal. I hope very much that you will be good enough to examine this material and, where necessary (perhaps in consultation with your colleagues) that you will decide to recommend the purchase of a subscription to the journal by your main or departmental library.

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Official Organ of the Association for Child Psychology and Psychiatry

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PSYCHOLOGY AND THE CHILD

ERRATUM

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D. P. CANTWELL: Genetics of hyperactivity 261

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CHILDREN OF WEST INDIAN IMMIGRANTS—II. INTELLECTUAL PERFORMANCE AND READING ATTAINMENT

WILLIAM YULE, MICHAEL BERGER*, MICHAEL RUTTER and BRIDGET YULE

Institute of Psychiatry, de Crespigny Park, Denmark Hill, London SE5 8AF

INTRODUCTION

IN RECENT years, much anxiety and resentment has been expressed about the high proportion of children of West Indian parentage living in this country who have been placed at schools for the educationally subnormal, the low proportion in selective academic schools and the apparently low level of educational attainments of many such children (Coard, 1971; D.E.S., 1971; Little, Mabey and Whittaker, 1968; Townsend, 1971). Surveys in English schools have generally shown that West Indian children here, as well as in the West Indies, tend to score particularly poorly on Raven's Progressive Matrices (Payne, 1969; Bhatnagar, 1970), that scores on vocabulary tests and reading are rather below those of non-immigrant children (Halsey, 1972), and that even in those children of good intelligence reading attainments are often below age level (Bagley, 1971). On the other hand, Houghton (1966) found only a non-significant two point difference on the Terman-Merrill test at age 5 yr in a socially deprived group and Bagley (1971) also found no significant difference on the same test at 9 yr in a very highly selected group from favourable backgrounds. Studies of other immigrant groups (Ashby, Morrison and Butcher, 1971; Halsey, 1972) have also shown lower levels of average intellectual performance and educational attainment.

These, and other studies, point to the probable presence of educational difficulties in many English children of West Indian parentage. However, many of the investigations used group tests and teacher judgments, few were based on representative samples of the general population, many employed tests (such as Raven's Progressive Matrices) which appear to have a different significance in West Indian children, and usually no distinction was drawn between immigrant children and native-born children of immigrant parents. The latter is a particularly important omission as studies of Asian children (Ashby, Morrison and Butcher, 1971) and of children of West Indian parentage attending psychiatric clinics (McFie and Thompson, 1970) suggest that children born in this country or living here for many years have higher scores on tests of intellectual performance. In the absence of adequate studies there is a danger of drawing wrong conclusions about the educational requirements of these children. There are good investigations showing that the average I.Q. test performance and educational attainments of children born and

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reared in the West Indies are consistently lower than those of children from native English families (Vernon, 1969; Hertzog *et al.*, 1972), but these results refer to children living in circumstances quite different to those in England and cannot be applied to children raised in this country. There was a need for an epidemiologically sound general population based study, using individually administered and well standardised psychological tests on a sample in which there is a clear differentiation according to the child's place of birth.

The opportunity for such a study arose during the course of a larger project investigating the prevalence of specific reading retardation and psychiatric disorder among 10-yr-old children attending schools in one inner London borough (Rutter *et al.*, 1974a; Berger, Yule and Rutter, 1974). The particular borough studied has a relatively high proportion of immigrant families, many of whom came from the West Indies. As part of the broader investigation a special study was made of the latter group. The results are reported in a series of three papers. The first (Rutter *et al.*, 1974d) describes the strategy of the study and presents the behavioural and psychiatric findings. This paper gives the educational results and a third paper (Rutter *et al.*, 1974b) outlines the family and social circumstances of the groups.

I.Q. test findings on different racial groups living in other countries have been associated with a vigorous controversy about possible genetic reasons for the differences in I.Q. level between racial groups (Jensen, 1969, 1973). Whatever the merits or demerits in these arguments, the outcome is bound to remain inconclusive so long as there are (as at present) major differences between the racial and cultural groups studied with respect to nutritional state, social circumstances and life experiences. The present study is in no way concerned with innate potential or possible genetic differences between races, but rather with educational *attainment* (and its correlates) in the school system in which the children find themselves.

METHODS

(a) *Strategy*

In keeping with the methods developed during earlier epidemiological studies on the Isle of Wight (Rutter, Tizard and Whitmore, 1970), a two stage procedure was followed. In the first stage, the total population was screened using group tests of non-verbal ability and reading attainment together with behavioural and social questionnaires completed by teachers. During the second stage, there was a more intensive individual examination of a sub-group of children selected at random from the total population. This involved individual psychological testing of the children and standardised interviews with parents and teachers, so allowing not only the collection of more detailed information but also a means of testing the accuracy of information supplied by teachers.

(b) *The total population studied*

The overall sample was initially defined as all children in the last term of their penultimate year of primary schooling who attended ordinary local authority schools in one inner London borough, or who lived in that borough and attended special schools (anywhere) with local authority support. In the summer term of 1970, when

the children were approximately 10-yr of age, teachers completed questionnaires and the children took group tests. Inevitably, not all children were present for all tests, and the situation was further complicated by children leaving school during the period that testing was undertaken. It was therefore decided that children who left school before completion of the group psychological tests would not form part of the population, and equally, that children who joined school during the last few weeks of the Summer Term would have all the questionnaires completed on them. This resulted in a total population of 2,281 children. The following term (i.e. the autumn term of the final year of junior school) the children in the random sample were tested individually.

(c) *Place of birth*

During the first stage of the investigation, the teachers completed questionnaires on the country of birth of the child, of his father and of his mother. In addition information was obtained on the father's occupation and on whether the child was in a special class or was receiving additional remedial help with reading. In those cases where the information given on the questionnaire was insufficient for determining the country of origin or the parental occupation schools were visited individually in order to gather the necessary supplementary information.

On the basis of this information the children could be subdivided into various groups according to the parents' or children's place of birth. Table 1 shows the country of origin of the parents according to information supplied by teachers. Subsequent interviewing of the parents showed this information to be correct in all but a few cases (Rutter *et al.*, 1974a). It is clear that the majority of children were born to parents both of whom were born in the British Isles. West Indian parents formed the largest group of immigrants, but there was also a substantial number of Cypriot parents. Group test findings are, therefore, available for this group as well as for the children of West Indian parentage.

The broader study, of which this investigation forms part, was concerned with a comparison between children attending schools in one inner London borough and children living on the Isle of Wight (Berger, Yule and Rutter, 1974; Rutter *et al.*, 1974a). As, at the time of the study, there were no Isle of Wight children born to parents involved in the immigration from the West Indies, Asia, Africa or Cyprus, a "non-immigrant" group of London children was delineated for comparative purposes. This consisted of all children both of whose parents were born in the United Kingdom, Northern Ireland or Eire or combinations thereof, together with children who had either parent born in Britain and the other parent born in the European mainland, the U.S.A., Canada, Australia or New Zealand. Hereafter, this group will be referred to as the "indigenous" population of 10-yr-olds. Of the total group of 2,281 children, 1,689 (or 74.05 per cent) are in the indigenous population. Where the country of origin was coded "other", all available information was considered in coming to a decision on whether or not to include a child in the "indigenous" group.

(d) *Group tests*

The groups tests used were:

TABLE 1. PLACE OF BIRTH OF PARENTS OF 10-YR-OLDS

	Father's place of birth											Total
	0	1	2	3	4	5	6	7	8	9	BL	
0	1,341	17	36	22	3	1	4	4	23	1	10	1,462
1	14	34	2	1	0	0	0	1	3	0	0	55
2	34	2	133	0	0	0	0	1	5	1	2	178
3	5	0	0	354	1	0	0	0	2	5	0	367
4	1	0	1	0	13	1	0	0	2	1	0	19
Mother's 5	0	0	0	0	0	4	0	0	0	0	0	4
place of 6	3	0	0	0	0	0	34	1	1	0	0	39
birth 7	0	0	0	0	0	0	0	43	0	0	0	43
8	14	1	2	4	1	0	0	1	60	1	0	84
9	0	0	0	1	0	0	0	1	0	3	0	5
BL	6	1	2	1	0	0	0	0	0	1	14	25
Total	1,418	55	176	383	18	6	38	52	96	13	26	2,281

Key: Great Britain 0 Cyprus—Greek speaking 6
 Northern Ireland 1 —Turkish speaking 7
 Eire 2 Other 8
 West Indies 3 Not known at all 9
 India 4 Presumably Great Britain BL
 Pakistan 5

- (i) The N.F.E.R. Test NV5 (Pidgeon, 1965). This is a 100 item test of non-verbal intelligence which takes approximately 40 min to administer. Its split-half reliability is reported to be in excess of 0.94 on a sample of children aged 8-9 yr.
- (ii) The N.F.E.R. Reading Test S.R.A. This is a lengthened version of the earlier Sentence Reading Test 1 (Watts, 1955). The test consists of 48 items and 20 min are allowed for administration.

NV5 and SR1 had been used in the earlier Isle of Wight studies (Rutter, Tizard and Whitmore, 1970) and so close comparisons can be made between the results of the two surveys.

In addition the teachers completed a behaviour rating scale, which was a slightly revised form of that used in the Isle of Wight surveys (Rutter, 1967; Rutter, Tizard and Whitmore, 1970).

(e) *Individual tests*

The individual test battery was that used in the Isle of Wight studies. All selected

children were tested individually by fully qualified postgraduate psychologists, all of whom were experienced in testing children. The tests used were:

- (i) *A short form of the Wechsler Intelligence Scale for Children* (Wechsler, 1949). This consisted of the four subtests: Similarities, Vocabulary, Block Design and Object Assembly, chosen on the basis of a factor analysis of published data (Maxwell, 1959).
- (ii) *Neale's Analysis of Reading Ability Form A* (Neale, 1958). This yields highly reliable measures of both Accuracy and Comprehension of reading (Yule, 1967).

In addition, the children's heights were measured in centimetres using the Harpenden Pocket Stadiometer.

(f) *Samples selected for individual testing*

A control group of 106 children was selected at random from the indigenous population and, all but one of these children were tested individually. (One girl was repeatedly absent.)

Of the 354 children whose mothers and fathers had both been born in the West Indies, 145 of the children themselves had been born in the West Indies, whilst 207 had been born in the U.K., according to the information available to teachers (2 children of West Indian parentage were allegedly born elsewhere). Forty-nine children were selected at random from the West Indies born group (the immigrant children), and 51 children were selected at random from the U.K. born group (children of immigrants). These 100 children were all tested individually.*

RESULTS

(a) *Parental occupation*

Parental occupation, defined according to the Registrar General's (1966) Classification of Occupations, and coded on the basis of information provided by teachers, is shown in Table 2. Compared with the fathers of primary school children in the country as a whole, the fathers in the inner London borough contained a smaller proportion with professional or managerial occupations and a somewhat larger proportion in manual jobs. The difference was less with respect to the "indigenous" group and most marked with respect to the West Indian families where there were very few fathers in non-manual jobs of any kind. There were no appreciable differences in parental occupation between those immigrant families where the child was born in this country and those where the child was born abroad.

The group test results are shown in Tables 3 and 4. It may be seen that the mean scores of the "indigenous" sample (92 on the NV5 I.Q. and 95 on the SRA reading) are well below the expected national norms of 100. This difference is in keeping with the slight downward skew in the parental occupation distribution but is probably rather greater than that distribution would lead one to expect in the light of known correlations between I.Q. and social class (Reese and Lipsitt, 1970).

*It should be noted that because of limitations in the resources available to us, individual psychological testing was not carried out with the group of children from West Indian families who showed high scores on the behavioural questionnaire completed by teachers (Rutter *et al.*, 1974d). Conversely, the randomly selected group ($n = 58$) for whom parental interviews were obtained (Rutter *et al.*, 1974b) was smaller than, and formed a random part of, the group of 100 children tested individually.

TABLE 2. PARENTAL OCCUPATION DISTRIBUTIONS

Occupation (R-G's classification)	England (1964)* (%)	Inner London Borough (Total population) (%)	"Indigenous" (%)	West Indian (%)	Greek Cypriot (%)	Turkish Cypriot (%)
I and II—Professional/ Managerial	18	12	13	2	15	4
III—Non-Manual (clerical)	11	8	9	2	4	14
III—Manual (skilled)	48	53	52	59	65	57
IV—Semi-skilled manual	22	13	13	16	12	14
V—Unskilled manual		14	13	20	4	11
Total No. known		1810	1393	246	26	28
Total	3092	2281	1689	354	34	43

Parental occupation in each case expressed as a rounded % of total number of known cases. *Taken from *Plowden Report*, Vol. 2, p. 100.

TABLE 3. NON-VERBAL I.Q. SCORES ACCORDING TO COUNTRY OF ORIGIN

	Total population	"Indigenous"	West Indian U.K. born	Immigrant	Greek Cypriot U.K. born	Immigrant	Turkish Cypriot U.K. born	Immigrant
Mean score	90.10	92.38	85.24	76.43	90.65	80.18	85.08	80.97
s.d.	16.16	15.82	13.51	15.51	14.68	13.11	15.80	12.87
N	2,248	1,668	201	143	17	17	13	30
			$t = 5.63$		$t = 2.19$		$t = 0.89$	
			$d.f. = 342$		$d.f. = 32$		$d.f. = 41$	
			$p < 0.001$		$p < 0.05$		N.S.	
<i>Indigenous vs</i>	<i>t</i>	<i>d.f.</i>	<i>p</i>					
All W. Indian	11.69	2012	< 0.001					
All Greek	2.54	1700	< 0.02					
All Turkish	4.17	1709	< 0.001					

TABLE 4. GROUP READING SCORES ACCORDING TO COUNTRY OF ORIGIN

	Total population	"Indigenous"	West Indian U.K. born	Immigrant	Greek Cypriot U.K. born	Immigrant	Turkish Cypriot U.K. born	Immigrant
Mean score	92.82	94.81	88.68	81.93	87.00	81.29	93.77	79.29
s.d.	16.20	16.26	13.87	12.15	15.93	16.12	16.53	12.84
N	2,227	1,660	200	135	17	17	13	29
			$t = 4.58$		$t = 1.03$		$t = 3.10$	
			$d.f. = 333$		$d.f. = 32$		$d.f. = 40$	
			$p < 0.001$		N.S.		$p < 0.01$	
<i>Indigenous vs</i>	<i>t</i>	<i>d.f.</i>	<i>p</i>					
All W. Indian	9.36	1995	< 0.001					
All Greek	3.78	1692	< 0.001					
All Turkish	4.37	1700	< 0.001					

In all groups girls tended to score slightly above boys on both the non-verbal test and the reading test. The children from immigrant families did not differ from the "indigenous" children in this respect.

It is also evident that the mean I.Q. and mean reading score of each of the groups of children from immigrant families are significantly below those for the "indigenous" population. The mean I.Q. for the children from West Indian families was 82, that for children from Greek Cypriot families was 85 and for those from Turkish Cypriot families was 82. The comparable mean reading scores were 86, 84 and 84.

However, it was also striking that within each group of children from immigrant families there were marked differences in mean score according to the child's place of birth. In all cases, children born in this country scored more highly than children born overseas, each of the three differences being statistically significant at the 5 per cent level. The scores of the U.K. born children were much closer to those of the "indigenous" group, although remaining below them.

The magnitude of these differences according to place of birth is uncertain due to certain inadequacies in the information provided by teachers. As noted previously, as part of the two stage design, individual structured interviews were carried out with parents of selected subgroups. Of the parents of the 100 "West Indian" children selected at random for psychometric testing, 54 were interviewed. On the basis of information obtained at interview, the place of birth of six of these children was found to have been incorrectly recorded by their teachers. In all six cases, the parents gave the child's place of birth as the U.K., whereas the teachers gave it as the West Indies. As will be shown below in relation to individual psychological test results, these errors are unlikely to have affected the pattern of differences observed on group testing.

Thus, on measures of non-verbal intellectual performance and of reading attainment children whose parents were born abroad score less highly than the "indigenous" population. Within the non-indigenous groups children born in the U.K. score more highly than their immigrant peers.

(c) *Individual test results*

In this section, two broad groups of analyses will be considered. Firstly, comparisons will be drawn between the "indigenous" control group and the randomly selected group of children of West Indian parentage. Secondly, within the West Indian group, we will examine differences in ability and attainment according to (a) the place of birth as identified by the teachers, and (b) the place of birth as stated by the parents.

Table 5 shows the main comparisons between the "indigenous" controls and the total group of West Indian children (i.e. irrespective of place of birth).

The "indigenous" children are of average intelligence on both the verbal and performance factor I.Q.s. Boys score significantly higher ($p < 0.01$) than girls on the performance factor I.Q. but the difference on the verbal factor I.Q. is not significant. However, on the reading test the group as a whole is 1 yr below chronological age on both accuracy and comprehension. The findings for the "indigenous" group with respect to both intelligence and reading attainment are discussed more

TABLE 5. RESULTS OF INDIVIDUAL TESTING

	Indigenous controls						Total West Indian Sample					
	Total		Boys		Girls		Total		Boys		Girls	
Number	105		55		50		100		46		54	
	<i>x</i>	<i>s.d.</i>	<i>x</i>	<i>s.d.</i>	<i>x</i>	<i>s.d.</i>	<i>x</i>	<i>s.d.</i>	<i>x</i>	<i>s.d.</i>	<i>x</i>	<i>s.d.</i>
Age (mths)	126.79	3.50	126.78	3.38	126.80	3.66	126.87	3.92	127.11	3.82	126.67	4.03
Height (cm)	138.10	7.43	138.80	6.76	137.34	8.10	142.41	6.98	141.62	6.69	143.09	7.20
WISC (Short form)												
Verbal I.Q.	101.34	12.24	102.71	12.68	99.84	11.68	86.93	11.81	87.41	12.86	86.52	10.95
Performance I.Q.	103.93	15.91	108.29	14.67	99.14	15.99	90.43	14.90	94.26	16.01	87.17	13.16
Neal Reading Accuracy	115.43	18.47	117.07	19.83	113.62	16.85	102.95	17.01	100.13	16.19	105.35	17.46
Comprehension	114.96	20.53	121.04	22.15	108.28	16.34	99.62	17.14	98.61	17.28	100.48	17.13

fully elsewhere (Berger, Yule and Rutter, 1974).

The mean verbal and performance I.Q.s for the children of West Indian parentage are 86.93 and 90.43 respectively. These are 14.41 and 13.50 points below the comparable "indigenous" group means, both differences being significant at the 0.1 per cent level. [$t = 8.58$ for *V. I.Q.*; $t = 6.27$ for *P. I.Q.*]

On the individual reading test the West Indian sample as a whole scored at a level approximately 2 yr below chronological age, and just over 1 yr below the "indigenous" controls (who were themselves reading well below age level). The differences between the West Indian and "indigenous" groups were again statistically significant (for accuracy, $t = 5.04$, $p < 0.001$; for comprehension, $t = 5.82$, $p < 0.001$).

TABLE 6. COMPARISON OF W.I. CHILDREN ACCORDING TO (TEACHER DESIGNATED) PLACE OF BIRTH

	51 Born in U.K.				49 Born in W.I.	
	<i>x</i>	<i>s.d.</i>	<i>t</i>	<i>p</i>	<i>x</i>	<i>s.d.</i>
Age (months)	127.12	3.72			126.61	4.14
Height (cm)	143.22	7.47	1.65	<i>N.S.</i>	140.93	6.31
WISC V.F. I.Q.	88.43	12.79	1.33	<i>N.S.</i>	85.37	10.61
P.F. I.Q.	93.57	13.65	2.19	< 0.05	87.16	15.56
Neale Acc.	108.04	18.58	3.19	< 0.01	97.65	13.44
Comp.	103.12	19.66	2.11	< 0.05	95.98	13.29

N.B. The accuracy of the teaching designation of country of origin is called into question in the text.

The next question to be considered is whether children who were born in the U.K. to parents of West Indian origin differ in their educational attainments from the group which is truly immigrant. Table 6 presents data bearing on this point. Here, the children have been categorized on the basis of information obtained from their class teachers, and it can be seen that the group born in the U.K. score significantly higher on WISC Performance I.Q. ($t = 2.19$; $p < 0.05$) as well as on the two reading scales—Accuracy ($t = 3.19$; $p < 0.01$) and Comprehension ($t = 2.11$; $p < 0.05$).

Caution is required in accepting these results as they stand in view of the finding that teachers were often wrong in their coding of the child's place of birth (6 out of 54 in control group—see above and 14 per cent in the larger interview group—Rutter *et al.*, 1974d), and particularly as the error was always in the same direction, namely, recording birth abroad for children actually born in this country. To check what effect, if any, this had on the educational findings, the data on the 54 interviewed children were reanalysed using the parental coding of the child's place of birth (see Table 7).

TABLE 7. COMPARISON OF W.I. CHILDREN ACCORDING TO (PARENT DESIGNATED) PLACE OF BIRTH

	33 Born in U.K.		<i>t</i>	<i>p</i>	21 Born in W.I.	
	<i>x</i>	<i>s.d.</i>			<i>x</i>	<i>s.d.</i>
Age	126.84	3.83			126.52	4.20
Height	144.55	7.83	1.39	N.S.	139.81	6.21
WISC V.F. I.Q.	88.58	13.41	0.93	N.S.	85.52	10.64
P.F. I.Q.	93.61	14.50	2.21	< 0.05	85.19	13.08
Neale Acc.	107.15	17.71	2.36	< 0.05	97.00	13.71
Comp.	104.00	19.32	1.73	N.S.	96.33	13.21

In fact, the errors in the teachers' designation of the child's place of birth made little difference, as the pattern of results using the parental coding of birth place was closely similar. Again the U.K. born children scored significantly higher on both the WISC I.Q. test and on the Neale Analysis of Reading Ability. As the educational background of the parents in the two groups was closely similar (Rutter *et al.*, 1974d), it may be concluded that the difference according to the child's place of birth is likely to be a real and meaningful one.

Although the U.K. born West Indian children scored well above those born in the West Indies, their scores were still well below the average for the "indigenous" group. Thus, their mean WISC verbal factor I.Q. was 89 compared with 101 for the "indigenous" group, the performance factor I.Q. was 94 compared with 104, reading accuracy was 107 months compared with 114 months. Unlike the findings of McFie and Thompson (1970) the difference on the verbal factor I.Q. was as great as that on the performance factor I.Q.

TABLE 8. AGE AT IMMIGRATION AND SCORES ON INDIVIDUAL TESTS

	Age at coming to Britain					
	Before 8 yr (<i>N</i> = 10)		<i>t</i>	<i>p</i>	After 8 yr (<i>N</i> = 11)	
	<i>x</i>	<i>s.d.</i>			<i>x</i>	<i>s.d.</i>
Age (months)	125.80	4.52			127.18	4.00
Height (cm)	139.67	6.11			139.95	6.61
WISC (short form)						
Verbal I.Q.	89.00	11.39	1.45	<i>N.S.</i>	82.36	9.31
Performance I.Q.	87.50	11.28	0.77	<i>N.S.</i>	83.09	14.75
Neale Reading						
Accuracy	100.20	12.98	1.03	<i>N.S.</i>	94.09	14.31
Comprehension	101.00	13.42	1.60	<i>N.S.</i>	92.09	12.06

In order to check whether the difference according to place of birth was likely to be a function of immigration as such, rather than duration of time in this country, an analysis was made of intelligence and reading attainment *within* the immigrant group according to the age at which the children came to the U.K. Information on this point was available only for the 21 immigrant children whose parents had been interviewed. Eleven of these children arrived in the U.K. after the age of eight years and so had been in the London school system for less than $2\frac{1}{2}$ yr.

The individual test results of these children can be seen in Table 8. Although the numbers are very small, there is a clear trend for the children who immigrated before the age of eight years to score more highly on both the intelligence and reading attainment tests. This effect parallels that reported by Ashby *et al.* (1971) but is not so marked as in that study of immigrants from India.

(d) Height

Tables 5 to 7 also show the findings regarding the children's height. It is evident that the West Indian children are some 4 cm taller on average than their "indigenous" peers ($t = 4.28$; $p < 0.001$). Interestingly, however, within this group, those born in the U.K. were 2 cm taller than those born in the West Indies. The interpretation of these differences is complicated by the finding that all the London groups ("indigenous" and West Indian) are still shorter on average than those of the same age living on the Isle of Wight and whose height was measured in the same way with the same instrument. The average height for Isle of Wight boys was 146.0 cm and for girls it was 140.3 cm (Rutter, Tizard and Whitmore, 1970).

(e) Intercorrelations

Table 9 shows the intercorrelations between the short WISC I.Q. and the measures of Accuracy and Comprehension of reading, separately for each group. The numbers were too small to do this separately for each sex within each subgroup. From these data, it can be seen that the correlations between ability and attainment tests are lower among children born in the West Indies than those born in the U.K. but not significantly so. Likewise, West Indian children of West Indian parentage born in the U.K. are indistinguishable from the "indigenous" population in terms of correlation between WISC I.Q. and Comprehension of reading.

TABLE 9. CORRELATIONS BETWEEN I.Q. AND READING

	Indigenous	W.I./U.K. Born	W.I./W.I. Born
WISC r Accuracy	0.51	0.40	0.45
WISC r Comprehension	0.62	0.61	0.41

None of the differences between correlations reach statistical significance at the 0.05 level.

(f) Schooling

In the borough as a whole it was found that certain characteristics of schools were associated with the frequency of reading difficulties and behavioural deviance in the children attending them. In schools with high rates of teacher turnover or pupil turnover, with a high proportion of children having free school meals, with a high absenteeism rate or with a low pupil/staff ratio the children were found to be

significantly more likely to have high (deviant) scores on the teachers' behavioural questionnaire and significantly more likely to show reading difficulties (Rutter, 1973; Rutter *et al.*, 1974c). Circumstantial evidence suggested that, in part, these associations reflected an effect of the school on the children's behavioural attainments. Table 10 shows the extent to which children from immigrant families attended schools with these characteristics. For each school variable, schools were divided into those in the top, middle, and bottom third of the distribution on that variable. Then, using information from teachers on the parental place of birth, the average proportion of 10-yr-old children from immigrant families (i.e. those not in the "indigenous" group defined as above) was calculated for schools in each third of the distribution for each characteristic. In this way it was possible to determine whether children from immigrant families were more or less likely to go to schools with characteristics associated with high rates of behavioural deviance and reading difficulties.

TABLE 10. SCHOOL CHARACTERISTICS AND PROPORTION OF CHILDREN FROM IMMIGRANT FAMILIES

	School Characteristic		
	Low (%) "immigrant" children	Medium (%) "immigrant" children	High (%) "immigrant" children
Teacher Turnover	20.9	29.5	26.1
Pupil Turnover	21.2	23.4	35.9***
Absenteeism	18.6	28.1	31.8***
% children having free school meals	15.8	32.7	26.9***
Pupil/staff ratio	34.5	22.4	20.1***

***Linear trend significant at 0.01 per cent level.

Children from immigrant families were no more likely than other children to attend schools with a high turnover of teachers, a variable particularly strongly associated with deviance and low reading attainment. On the other hand, children from immigrant families were significantly more likely to attend schools with a high pupil turnover, a high absenteeism rate, a high proportion of free school meals children and a low pupil/staff ratio. In short, with respect to four of the five variables, children from immigrant families were particularly likely to attend schools of a kind known to be associated with a high rate of behavioural problems and reading difficulties. The findings apply to children from all immigrant groups, but as West Indian families accounted for almost two-thirds of these, it is likely that the findings for them would be similar to those for the group as a whole.

DISCUSSION

The present study has provided an educational investigation of the total population of 10-yr-old children living in one predominantly working class inner London borough. By examining subgroups defined according to the place of birth of parents and child, it has been possible to study children from immigrant families without the

bias and contamination usually associated with smaller scale clinical studies. Furthermore, by combining an intensive individual study of representative subgroups of the total population with screening of the entire population by group tests, we have been able to overcome the shortcomings of group tests which are very prone to be influenced by the children's reading skills (regardless of what they purport to measure).

The main findings are that, with respect to both intellectual performance and educational attainment, children from immigrant families score well below children from non-immigrant or "indigenous" families; and that within the former group those born in this country score well above those born abroad. The *direction* of these differences is very much as expected from previous work, but in order to assess service needs, the *magnitude* of the difference must also be known. Epidemiological studies are required for this purpose.

In evaluating the findings, the skewed social class distribution of the population must be borne in mind as it necessarily limits the generalisations which may be made from the data. Also, the use of parental occupation as an index of social class within immigrant groups is questionable in view of the known inequalities of occupational opportunity (Daniel, 1968).

Similar patterns of I.Q. and attainment were previously found in the London Borough of Brent in 1963 (quoted in D.E.S., 1971, pp. 26-27). There, the mean I.Q. of the West Indian group of 9-yr-old children was found to be 85. This group was not subdivided according to place of birth, a variable which has been shown to be important in the present study. Likewise, the I.L.E.A.'s (1969) study of reading in 10-yr-olds, showed that the reading attainment of immigrant groups was markedly lower than that of non-immigrants. Interestingly the greatest proportion of poor readers (defined as obtaining a standard score of less than 80) was found amongst the Turkish Cypriots. This agrees with the findings of the present study. The replicated finding of particularly poor reading attainment among children of Turkish Cypriot parentage is both striking and worthy of further detailed investigation. The consistent differences in score on tests according to place of birth are also in accord with previous, smaller-scale studies (Ashby, Morrison and Butcher, 1971; McFie and Thompson, 1970).

The results from individual testing are consistent with the pattern of findings on the group tests. They demonstrate clearly that, for whatever reasons, children of Caribbean origin score significantly lower on individual tests of intelligence and attainment than their "indigenous" peers. Moreover, within the Caribbean group, children born in this country achieve significantly higher scores than their peers born in the West Indies.

There are probably several reasons for the observed differences in test scores according to place of birth. Malnutrition in early life is much commoner in the West Indies than it is in the U.K. and it is known that this may adversely influence intellectual development (Scrimshaw and Gordon, 1968; Birch, 1972; Hertzog *et al.*, 1972). That this is likely to be one factor is suggested by the difference in height according to place of birth, as height has been found to be a sensitive indicator of nutritional status. The disruption of moving from one cultural setting to another may also have had some effect. A further variable concerns the children's early life

experiences which were found to differ according to place of birth (Rutter *et al.*, 1974b). On the other hand, the differences in this connection do not always favour the U.K. born children and it is unlikely that this constitutes the main factor.

However, it seems that the experience of schooling in this country may be the main, although not the only, variable accounting for the better reading attainments of children born in this country, compared with that of children born abroad. This conclusion is suggested by the finding that length of time in this country, as well as place of birth, was associated with the level of reading attainment. As so few children came to the U.K. during the pre-school years, length of time in this country is almost equivalent to duration of schooling in this country. It appears that, for all the limitations of London schooling, it may have advantages over that generally available in the West Indies. On the other hand, it is a matter of concern that children from immigrant families were particularly likely to attend schools with characteristics associated with poor reading attainment. How far their attainments might be improved by more favourable schooling is a matter requiring investigation.

The individual test data are important in interpreting the results of testing children referred for educational investigation. Hitherto there have been no readily available comparison data for children of West Indian parentage. The present data clearly show the necessity of taking the child's place of birth into account in assessing the results of individual testing.

However, it is not sufficient to show just how much lower West Indian children score on standard tests, even though these data will be invaluable for educational and clinical psychologists. One must also examine the relationship between intelligence and attainment within each subgroup to see what level of predictions can be made. In this connection, it is necessary to consider the meaning to be attached to scores on intellectual performance.

The I.Q. test provides a sample of behaviour and does not, and cannot, measure "innate" intelligence (Rutter and Yule, 1974). The behaviours selected for inclusion in I.Q. tests are chosen on the basis of their being *relatively* independent of schooling but still providing a good prediction of educational attainments (Vernon, 1970). Because the I.Q. test samples on a wide basis more general conceptual or reasoning skills it has usually proved to be an efficient predictor of scholastic performance. It was for that very practical reason that I.Q. assessment was included in the present study.

Nevertheless, there is no such thing as a culture free test (Anastasi, 1968) and a person's performance on I.Q. tests depends on motivational and situational factors as well as on intellectual capacity (Tarjan *et al.*, 1972). Accordingly, it cannot be assumed that an I.Q. score necessarily means the same thing in individuals from very disparate cultures. In this connection, a sharp distinction needs to be drawn according to the setting to which predictions based on I.Q. scores are to be applied. In the case of the present study, the aim was to predict to performance in London schools so that the WISC test was chosen as one known to be a good predictor in this situation.

However, there are specific examples of the influence of motivational factors with regard to the testing of individuals from certain minority cultures. Although findings are somewhat contradictory and open to other interpretations (Shuey,

1966), it has been suggested from research both in Britain and in the U.S.A. that attitudes towards skin colour so influence rapport that white teachers may exert a subtle deleterious effect on black subjects' scores (Deutsch, Katz and Jensen, 1968; Watson, 1972). Because of this possible effect, originally we had considered using West Indian psychologists to test West Indian children. In the event we did not, because we wished to test the children in the usual test conditions operative in London schools and because the effect probably applies only in a *competitive* situation when black subjects know that they are being directly compared with white subjects (which did not apply in the manner in which we undertook testing). As it turned out, no West Indian psychologist with postgraduate training in testing procedures was available in any case. Whether or not this introduced any bias into our data is a question which can only be resolved by future controlled investigations.

It has usually been found that despite the considerable limitations of I.Q. tests applied to black populations, their predictive validity is such as to justify their use when predicting performance in a "white-oriented" educational system (Anastasi, 1968; Reese and Lipsitt, 1970). This would imply, among other things, that the correlations between I.Q. and measures of educational attainment should not differ between "indigenous" and immigrant groups. Our results are substantially in agreement with that suggestion. The correlations did not differ significantly between the groups, although they were a little lower in the children from West Indian families.

So far, we have been discussing the problems of making concurrent statistical "predictions" from scores on intelligence tests to scores on educational attainment tests. The situation regarding predictions over time introduces other issues, upon which few data are available. Watson (1973) found that among West Indian children with WISC verbal scores below 80, there was a mean rise in I.Q. of 8 points over a 20 month period, compared with a rise of a quarter of a point in non-immigrant controls matched for age, sex and I.Q., the difference being statistically significant. Further studies on this point are required but it seems that rises of I.Q. may be more likely among recently immigrant West Indian children than among native born children.

This raises the issue of what is the most appropriate predictor of future academic attainment. Current practice places disproportionate weight on the results of intelligence tests, and this has aroused disquiet among many educationalists, especially regarding the selection procedures for placement in ESN schools (D.E.S., 1971). Too frequently, it is forgotten that placement in ESN schools should be made on *educational* grounds. The lower mean I.Q. of West Indian children may result in their being more often classified ESN on the basis of their I.Q. scores alone, than would be warranted according to their reading attainment. It should be added that it may be questioned whether ESN schools are the best means of providing educational help for children from immigrant families. Until such time as more definitive longitudinal studies are undertaken, educational decisions involving children of immigrant parents should be based primarily on levels of achieved competence in educational skills, taking into account the country of origin of the child.

Finally, attention must be paid to the finding that the intellectual performance and educational attainment of children born in this country to West Indian parents was still below that of the "indigenous" population. There are many possible

reasons for this difference. Firstly, school variables have been shown to be associated with educational performance in "indigenous" London children (Rutter *et al.*, 1974c) and we have shown some tendency for West Indian children to attend less favourable schools. Secondly, the West Indian families more often lived in adverse social circumstances and this may have hampered the children's learning. In our sample the children from West Indian families were more likely to live in overcrowded homes with poor facilities (Rutter *et al.*, 1974b). They were also much more likely to come from large families, a variable strongly associated with poor reading in most samples in which it has been studied (Rutter, Tizard and Whitmore, 1970). Thirdly, the children from West Indian families differed from "indigenous" children with respect to their early life experiences. In particular, many more of them had had child minding by non-relatives in the pre-school years (Rutter *et al.*, 1974b). In addition, other studies have shown that young West Indian children tend to have fewer toys and less play and interaction with their parents (Pollack, 1972). Also, of course, there are other possible social, cultural, genetic and nutritional differences between the children from West Indian and those from "indigenous" families. We have no data which would allow a choice within these or between these and other alternatives as explanations for the differences in intellectual performance and education attainment. Further investigation is required, but so also is action to reduce the rate of adverse influences among West Indian families. The considerably better intellectual performance and educational attainments of West Indian children born in this country is most encouraging, but the large remaining gap between them and "indigenous" children remains a challenge.

SUMMARY

The intellectual performance and reading attainments of 10-yr-old children of immigrant and non-immigrant parentage living in an inner London borough were examined using a two stage epidemiological approach. Initial screening by group tests was followed by individual assessment of intelligence and reading attainment in children of West Indian origin. Differences were found both between immigrant and non-immigrant groups, and within immigrant groups according to place of birth. Attention is drawn to the advantages of a two stage design for the validation of questionnaire information.

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BEHAVIOURAL INDICES OF FRUSTRATION IN NORMAL AND EMOTIONALLY MALADJUSTED CHILDREN

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INTRODUCTION

BEHAVIOURAL contrast (Reynolds, 1961) and peak shift (Hanson, 1959) are two of the most robust phenomena of the operant conditioning literature. They are observed in the successive discrimination training paradigm, in which subjects are first trained to respond in the presence of a stimulus (SD) signalling the availability of reward, and then given discrimination training between this and another stimulus ($S\Delta$) signalling the non-availability of reward. Behavioural contrast consists of an increase in responding in the presence of SD during discrimination training relative to the response rate obtaining before discrimination training has begun. When SD and $S\Delta$ are two values on the same stimulus continuum (e.g. wavelength of light or angular orientation), comparison between patterns of responding during generalization tests conducted before and after discrimination training reveals the phenomenon of peak shift: whereas generalization testing over the whole stimulus continuum conducted before discrimination training shows a peak response rate at SD , similar testing after the discrimination has been learned indicates a shift in the peak response rate away from SD , to a stimulus value further away from $S\Delta$. In addition to this shift of the *mode*, the shape of the second generalization gradient differs from that of the first. The *mean* of the gradient about SD in the post-discrimination generalization test (post-DGT) is also shifted from SD in a direction away from $S\Delta$. Grusec (1968) has suggested that mean shift may be a more sensitive measure of the processes which underlie peak shift, an important suggestion in view of the finding (Terrace, 1966–1968; Nicholson and Gray, 1971) that subjects who fail to display peak shift may nevertheless show mean shift.

The nature of these underlying processes is disputed, not all workers accepting that behavioural contrast and peak shift stem from a common cause. Nicholson (1972), however, has reviewed studies of discrimination training in a number of species and questioned the feasibility of attempting to explain the phenomena in isolation from each other. The most comprehensive explanation is that offered by Terrace (1966a, 1968), who suggests that behavioural contrast and peak shift arise from the emotional state of frustration, which is engendered during discrimination training by the non-arrival of anticipated reward, and becomes conditioned to $S\Delta$. In keeping with this view, both behavioural contrast and peak shift appear in species as diverse as goldfish (Ames and Yarczower, 1965) and children (Nicholson and Gray, 1971), which presumably reflects the phylogenetic longevity of the areas of the brain which mediate emotional behaviour (Brodal, 1969). Gray and Smith

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(1969) have developed a mathematical model which accounts for a number of phenomena, including peak shift and behavioural contrast, in terms of frustrative nonreward (FNR: Amsel, 1958). Incorporated into this model is the "fear = frustration" hypothesis (Gray, 1967; Wagner, 1966), according to which the same system in the brain is activated by signals both of impending punishment and of impending frustration. This equation has a number of consequences relevant to the present experiment.

In the first place, it supports Terrace's account of behavioural contrast and peak shift. Both these phenomena appear not only when S^{Δ} is associated with nonreward (Reynolds, 1961), and hence with frustration, but also when S^{Δ} is associated with reward coupled with electric shock (Brethower and Reynolds, 1962; Grusec, 1968), and hence with punishment. Furthermore, Terrace (1968) has pointed out that although peak shift and behavioural contrast reliably appear in the circumstances described, there is considerable variation in the extent to which different subjects display the phenomena. This observation assumes particular importance in the light of Gray's (1970) account of the origins of differences in human personality. According to Gray, individual differences along the major personality dimensions of extraversion-introversion and neuroticism (Eysenck, 1967) are causally related to individual differences in sensitivity to reinforcing events. Specifically, Gray suggests that introverts are relatively more susceptible to signals of punishing events (and hence, via the fear=frustration hypothesis, to signals of frustrating events) than extraverts, while extraverts are relatively more susceptible to signals of impending reward. Neuroticism is treated as equivalent to emotionality, which previous workers (e.g. Mowrer, 1960) have identified with increased sensitivity to reinforcing events in general. Gray therefore predicts that neurotic introverts are particularly susceptible to signals of impending punishment (and frustration), while neurotic extraverts are particularly susceptible to signals of impending reward.

These predictions received empirical support from a study by Nicholson and Gray (1972), in which normal schoolchildren were the subjects. In this population, high scores on neuroticism and introversion were associated with large mean shift and behavioural contrast scores. Incidence of both phenomena declined with advancing age, in accordance with clinical observations (reviewed by Lawson, 1965) that frustration effects decline with increasing developmental maturity. Furthermore, Nicholson and Gray found that high scores on neuroticism and extraversion were correlated with the tendency to generalize responding to stimuli adjacent to S^D , a tendency which they took to indicate susceptibility to the rewarding properties of S^D . If these results are held to support Gray's (1970) view that individual differences in extraversion-introversion and neuroticism reflect individual differences in susceptibility to signals of reward and punishment (or frustration), a second prediction emerges: namely, that a population chosen to represent extremes on these personality dimensions will show a greater incidence² of the behavioural effects of frustration than a normal population.

The present study is designed to test this hypothesis. In it, a comparison is made between the behaviour of a group of emotionally maladjusted boys and that of the normal schoolchildren in the Nicholson and Gray study, when both groups are

exposed to the same operant successive discrimination training procedures. It is predicted that the emotionally maladjusted subjects, despite being older than the normals and therefore likely on this score to be *less* susceptible to the effects of frustration, will show *greater* incidence both of the behavioural indices of frustration already described, and also of generalization of responding to stimuli about *SD*. These predictions arise from the assumption that a population of emotionally maladjusted boys will be characterized by higher levels of neuroticism than a population of normal children, and that it will contain both introverted and extraverted individuals whose susceptibility to one type of motivating event rather than another will be exaggerated by a high level of neuroticism.

METHOD

Subjects

There were two groups of subjects. The first of these (normal children described by Nicholson and Gray, 1972), consisted of 20 children (10 of each sex), selected from an initial sample of 190 at the Edward Field County Primary School, Kidlington, Oxfordshire. The initial sample completed the Junior Eysenck Personality Inventory (*JEPI*, Eysenck, 1965), and subjects were selected so as to give a wide range of scores along both the extraversion and neuroticism dimensions. Ages ranged from 7 yr 11 months to 11 yr 5 months, mean chronological age (*CA*) 9 yr 6 months. Reading ages (*RA*) on the Schonell Attainment and Diagnostic Tests of Reading English (Schonell and Schonell, 1960), which was administered by the school during the period of the experiment, ranged from 6 yr 7 months to 14 yr 9 months, mean *RA* 10 year. Of the 20 subjects in this group, three failed to complete the experiment: one left the school, one failed to learn the discrimination, and one had to be dropped from the experiment because of consistent absenteeism from school. Thus complete data were available for 17 subjects.

Subjects in the second group (maladjusted children) were selected from an initial sample of 34 boys at Besselsleigh School, Oxfordshire. This is a boarding-school for emotionally maladjusted boys, who attend it at the suggestion of their Local Education Authority. None of the boys was actually in care, or had a record of juvenile crime. On the basis of their scores on the Children's Behaviour Questionnaire (Rutter, 1967), the boys seemed to divide equally between the two major categories of emotional maladjustment, conduct disorders (anti-social behaviour) and neurotic (dysthymic) disorders; according to Eysenck and Rachman (1965), these categories consist of individuals who occupy the neurotic extravert and neurotic introvert quadrants of personality respectively. Eighteen boys were selected to take part in the experiment, ranging in age from 11 yr 2 months to 15 yr 1 month, mean *CA* 13 yr 1 month. Reading ages ranged from 6 yr 6 months to 13 yr 11 months, mean *RA* 10 yr 1 month. All subjects completed the experiment, so that complete data were available for 18 subjects.

In addition to the *JEPI*, a specially constructed Teacher's Rating Scale of neuroticism was administered. This scale (described in more detail by Nicholson, 1972) required the children's teachers to rate them on a series of adjectives used by Eysenck and Rachman (1965) to describe neuroticism. This alternative source of information about the children's level of neuroticism was introduced as a result of

Eysenck's (1965) finding of high correlations (averaging above -0.30 and in some cases exceeding -0.40) between Neuroticism and the Lie scale in her standardization data for the JEPI. This finding was dramatically replicated in Nicholson and Gray's (1972) study, when the correlation rose to -0.93 ; there seemed, therefore, to be enough uncertainty about the validity of the JEPI as an index of neuroticism, particularly at the bottom of the age range for which it is designed, to warrant the use of an alternative measure.

Apparatus

The apparatus has been fully described elsewhere (Nicholson and Gray, 1971; Nicholson, 1972). Essentially, it consisted of an operant conditioning cabinet from which a lever protruded, the pressing of which sometimes resulted in the delivery of a reinforcement into a tray, and in the middle of which there was a 9×9 in. translucent Perspex screen onto which discriminative stimuli (pictures of a space rocket at various angles of orientation) could be projected.

Schedules of reinforcement were controlled by a film-strip timer, lever-presses were recorded on counters, and the stimuli were back-projected from an automatically operated Kodak Carousel on to the screen. Instructions were kept to a minimum, emphasizing mainly that pressing the lever would sometimes result in the delivery of a reinforcement, and that the pictures on the screen might also have something to do with this.

In the Normal group, the nature of the reinforcement was varied, to examine the importance of this variable. Some subjects received poker chips which were returned to the experimenter at the end of each session, and had no "real" value. Some were able to exchange the poker chips they had accumulated for sweets at the end of the session (one sweet for every seven poker chips), while others received a sweet in place of every seventh chip directly from the machine. In the Maladjusted group, however, the mode of reinforcement was the same for all subjects. Poker chips were delivered during the experimental sessions, and on the basis of the number collected, these were exchanged for vouchers which served as currency at the school tuck-shop. The significance of variations in mode of reinforcement amongst the Normal children was found to be negligible by Nicholson and Gray (1972). Their importance for comparisons between the behaviour of the two groups will be evaluated in the Discussion section of this paper.

Procedure

The procedure followed has been described by Nicholson and Gray (1971, 1972). It was designed to be as closely analogous as possible to that employed by animal workers who had demonstrated behavioural contrast and peak shift (see Terrace, 1966a; Nicholson, 1972). Pre-discrimination sessions were spent in adapting subjects to the situation, and allowing them to become familiar with the response mechanism and the *SD* (the rocket tilted at 32.5° to the right of vertical, against a sky-blue background). Presentation of the *SD* followed the pattern adopted throughout generalization testing and discrimination training: periods of 30 sec stimulus duration separated by 1–2 sec, during which the projector switched to the next slide and the screen was blank. During the early sessions, lever-pressing was "shaped"

through flexible use of continuous reinforcement (*CRF*), fixed-ratio (*FR*), fixed interval (*FI*) and variable interval (*VI*) schedules, until an asymptotic level of responding had been established. Asymptote was reached when a subject showed no increase in average response rate from one session to the next; since individual subjects varied in the number of sessions they required to reach this criterion, the length of the pre-training varied between subjects.

The pre-discrimination generalization test (pre-DGT) was then carried out. In this, 12 test stimuli were used, with the rocket tilted at different orientations, ranging from 18.5° to 161.5° in 13° steps (including the *SD*). These were presented three times each in random order, and were interspersed with 24 additional presentations of *SD*; only during the latter was the VI 1 min schedule in operation, all test stimuli being correlated with extinction (i.e. with rewards being unavailable).

The next phase of the experiment consisted of intradimensional discrimination training between *SD* and *S Δ* (the rocket oriented 32.5° to the right and left of vertical respectively). There were an equal number of *SD* and *S Δ* presentations, randomly intermixed, in each session. The number of training sessions varied from 2-9 for different subjects, by which time discrimination ratios (i.e. the ratio of *SD* to *S Δ* response rates) ranged from 70 : 1 to 3 : 1, median 15 : 1.

After discrimination training, a final generalization test (the post-DGT) was administered over two sessions. The same 12 test stimuli (including *SD* and *S Δ*) as in the pre-DGT were presented seven times each in random order, without reinforcement, and interspersed with 18 additional presentations of *SD* and *S Δ* .

Quantitative scores of mean shift and behavioural contrast were obtained during the post-DGT. The mean shift score was obtained by calculating (in degrees) the extent of the displacement of the mean of the post-DGT generalization gradient away from *SD*. This calculation involved treating the post-DGT as a normal frequency distribution and calculating its mean; the mean shift score described the extent to which this deviated from *SD*. The behavioural contrast score was obtained by expressing average response rate to *SD* in the post-DGT as a log percentage of that which obtained during the pre-DGT.

Testing of each group of subjects took place over two school terms. Subjects were seen individually, and by testing no more than six subjects over a given period, the possibility of school holidays interrupting the testing of any subject was averted.

RESULTS

Although the main aim of the study was to demonstrate quantitative differences in the incidence of frustration effects in normal and emotionally maladjusted children, it is first necessary to establish that the overall behaviour of the two groups is not qualitatively different, and that both display the phenomena to be considered. Figures 1 and 2 present individual data showing both the course of discrimination training and patterns of responding in the post-discrimination generalization test for typical members of the two groups. Figure 1 demonstrates behavioural contrast clearly, with the response rates to *SD* rising to a level far in excess of the pre-discrimination training baseline rates, as responding to *S Δ* declines. Likewise, mean shift is clearly shown in Fig. 2, with the mean of the gradients being displaced to a point

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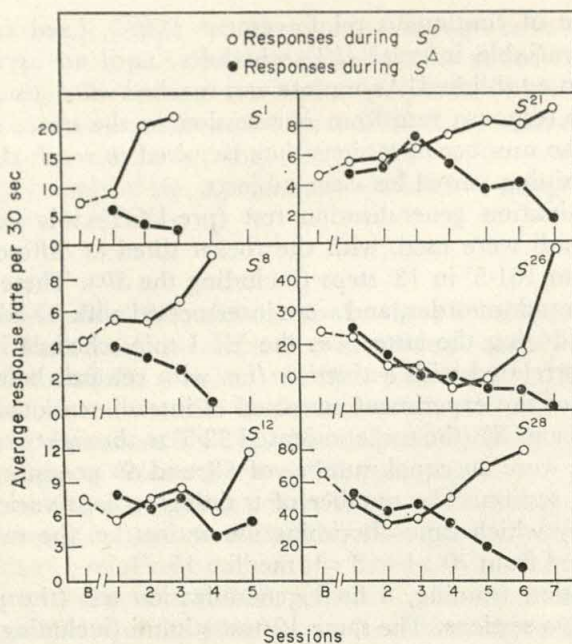


FIG. 1. Response rates to S^D and S^Δ during discrimination training for six subjects, three emotionally maladjusted boys (S 's 1, 8 and 12), and three normal children (S 's 21, 26 and 28). The point B on the abscissa represents the average rate in the last two prediscrimination training sessions.

(indicated by the vertical line) away from S^D and away from S^Δ . In both instances, the phenomena appear in a form directly comparable to their occurrence in animals (see, e.g. Bloomfield, 1966, 1967; Terrace, 1966a, 1968; Grusec, 1968). An obvious difference between the two populations, however, appears in the incidence of peak shift, for whereas seven of the Maladjusted boys display this phenomenon, only one of the Normal children does so. Given the view expressed earlier that peak shift is a more extreme measure of frustration than mean shift, this offers a pointer to the differences we may expect to uncover in the incidence of frustration effects between the two populations.

Another point of similarity between the two populations is that in neither do all subjects display both behavioural contrast and mean shift. Amongst the Normal children, 14 out of 17 show mean shift, and only 10 of these show behavioural contrast. Amongst the Maladjusted boys, 15 out of 18 show mean shift, and 15 show behavioural contrast. Nicholson and Gray (1972) argued that the Normal children who failed to show mean shift were genuinely exceptional subjects, whom they therefore excluded from the main analysis of the relationships between behaviour, personality and development undertaken in that study. Closer examination of the three subjects in the Maladjusted group who fail to display this phenomenon suggests that they too may be exceptional. We shall consider the evidence for this claim in the Discussion. The extent of the covariance between the measures of behavioural contrast and mean shift may be assessed in those subjects who display both phenomena. In both groups, the two are related ($r = 0.66$, $p < 0.05$ for the

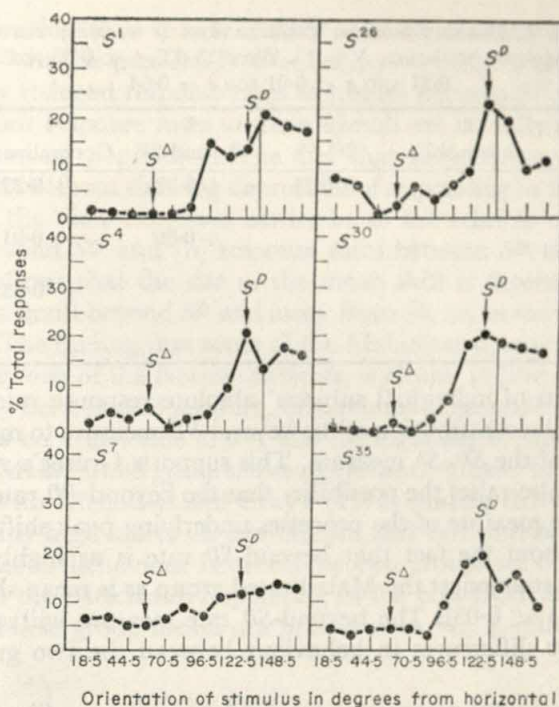


FIG. 2. Response rates during generalization testing in the presence of the stimulus rockets orientated at different angles after training on the discrimination between 122.5° (S^D) and 57.5° (S^A). S 's 1, 4 and 7 are emotionally maladjusted boys; S 's 26, 30 and 35 are normal children. The vertical lines show the Grusec means.

Normal group; $r = 0.55$, $p < 0.05$ for the Maladjusted group), as would be expected in the light of the common account of their origins offered earlier.

The mean shift calculation introduces two further behavioural measures. A shift in the mean of a distribution may reflect not only elevation on one side of the distribution (in this case, an increase in responding to stimuli further away from S^A), but also a depression on the other side (in this case, a decrease in responding to stimuli between S^D and S^A). Only if mean shift can be shown to reflect primarily the former (i.e. changes in responding in the area in which peak shift is observed) is it legitimate to follow Grusec's (1968) practice of treating mean shift as an alternative measure to peak shift. Nicholson and Gray (1972) were unable to demonstrate this conclusively in the Normal group, although they provided evidence for the weaker claim that mean shift did not reflect primarily a depression of responding in the area between S^D and S^A . Table 1 sets out the correlations, in the Maladjusted population, between mean shift values and (a) average response rates to the three stimulus values beyond S^D and away from S^A (the area in which peak shift is observed), and (b) response rates to the three stimulus values adjacent to S^D , nearer to S^A . In calculating these measures, response rates at each of the 6 stimuli were expressed as a simple proportion of response rate at S^D , separately for each subject, and summed over the two sets of three stimuli involved in each measure, in order to

TABLE 1. PRODUCT MOMENT CORRELATIONS (r VALUES) BETWEEN BEHAVIOURAL MEASURES, $N = 15$. WITH 13 d.f., $p < 0.05$ FOR $r = 0.51$ AND $p < 0.01$ FOR $r = 0.64$

	1 Mean shift	2 $SD-S\Delta$	3 Beyond SD	4 Generalization
1		- 0.11	+ 0.32	+ 0.22
2			+ 0.86	+ 0.91
3				+ 0.93
4				

eliminate the effects of individual subjects' absolute response rates. It can be seen from Table 1 that the contribution of the beyond- SD measure to mean shift is clearly greater than that of the $SD-S\Delta$ measure. This supports Grusec's view of the nature of mean shift, but also raises the possibility that the beyond- SD rate measure may be another alternative measure of the processes underlying peak shift. Support for this possibility comes from the fact that beyond- SD rate is as highly correlated with behavioural contrast amongst the Maladjusted group as is mean shift ($r = 0.56$ and 0.55 respectively, $p < 0.05$). The beyond- SD rate measure will assume further significance when the differences in behaviour between the two groups come to be considered.

The final behavioural measure is the tendency to generalize responding. This was obtained by summing the two measures of responding involved, the $SD-S\Delta$ rate and the beyond- SD rate, both being expressed as proportions of SD response rate.

Although we have seen that the overall behaviour of the two groups is not qualitatively different, it is clear from Table 2 that there are consistent quantitative differences in the incidence of the various frustration effects between the Normal and the Maladjusted children. The Maladjusted boys show significantly greater mean shifts when these are averaged over the whole sample ($t = 2.1$, $p < 0.05$); significantly more behavioural contrast ($t = 2.59$, $p < 0.05$); significantly more

TABLE 2. A COMPARISON BETWEEN MEAN SCORES OF THE NORMAL AND EMOTIONALLY MALADJUSTED SUBJECTS. SIGNIFICANT DIFFERENCES APPEAR ON BEHAVIOURAL AND DEVELOPMENTAL MEASURES, BUT NOT FOR PERSONALITY MEASURES. SEE TEXT FOR EXPLANATION

Variable	Normal children			Maladjusted boys				
	(N)	(Mean)	(s.d.)	(N)	(Mean)	(s.d.)	(t)	(p)
Mean Shift (in degrees)	14	3.90	2.51	15	5.98	2.68	2.08	< 0.05
log b.c. (per cent increase)	10	1.71	0.31	15	2.21	0.49	2.59	< 0.02
Generalization	17	67.29	14.62	18	76.28	9.86	2.12	< 0.05
Beyond SD rate	14	60.84	36.50	15	90.93	34.36	2.29	< 0.05
$SD-S\Delta$ rate	14	40.10	29.30	15	53.80	28.30	1.28	> 0.10
JEPI N	17	14.23	6.28	18	13.25	7.00	0.43	> 0.10
JEPI E	17	15.64	4.55	18	16.23	4.02	0.37	> 0.10
JEPI L	17	3.21	3.30	18	2.50	2.29	0.68	> 0.10
TRS N	17	36.00	10.81	18	39.27	6.38	1.00	> 0.10
CA	17	9.35	1.73	18	13.23	1.20	9.07	< 0.001
RA	17	10.26	2.27	18	10.44	2.60	0.22	> 0.01

stimulus generalization ($t = 2.1, p < 0.05$); and significantly more responding to stimuli beyond SD in the post-DGT ($t = 2.29, p < 0.05$). They do not, however, show significantly reduced response rates to stimuli between SD and SA in the post-DGT. In fact, their response rates to these stimuli are actually *higher* than those of subjects in the normal population. The fact that subjects may show significantly greater mean shifts without showing depression of responding in the area between SD and SA supports the view expressed earlier as to the relative contributions of (a) response rates beyond SD and (b) response rates between SD and SA to the mean shift area. It confirms that the size of the mean shift is determined primarily by response rates at stimuli beyond SD and away from SA , i.e. in the area in which peak shift is observed. The finding that seven of the Maladjusted subjects show peak shift, as opposed to only one of the Normal subjects, is clearly in line with this view.

The remaining behavioural measure, the amount of generalization of responding to stimulus values on either side of SD , also distinguishes between the two groups. The fact that the Maladjusted group shows significantly greater incidence of generalization is in line with Nicholson and Gray's (1972) finding that high scores on this variable accompany high scores on neuroticism and extraversion.

The differences in behaviour between the two groups set out in Table 2 may also be seen when the patterns of responding in the post-DGT are averaged within the two groups. These group means are presented in Fig. 3. The larger mean shift

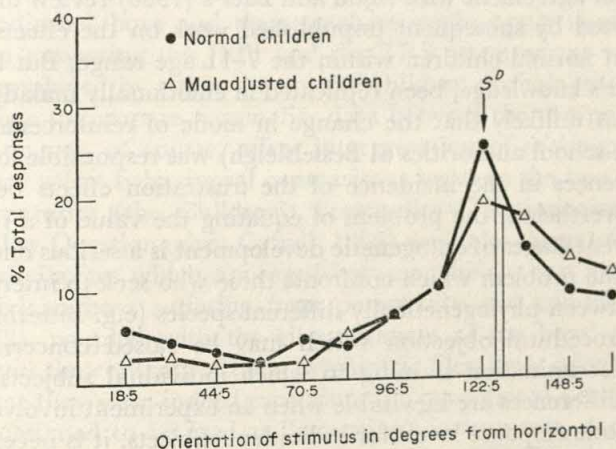


FIG. 3. Patterns of responding in the post-DGT for the two groups as shown by group mean values. The vertical lines show the means of the generalization gradients about SD for the Normal ($N = 14$) and the Maladjusted ($N = 15$) subjects.

value, the higher response rates to stimuli beyond- SD and away from SA , and the stronger tendency to generalize responding to stimuli other than SD of the Maladjusted children are all clearly demonstrated in this Figure. We may summarize the behavioural results by saying that the Maladjusted children appear to be more susceptible to frustration than the Normal children on all the indices of frustration used, and that they show a greater tendency to generalize responding.

Apart from the behavioural measures, the only other variable in Table 2 which

distinguishes between the two groups is chronological age. Nicholson and Gray (1972) confirmed that the frustration effects declined with advancing age amongst the Normal children. The fact that the Maladjusted boys are significantly older than the Normals (for CA, $t = 9.07$, $p < 0.001$) makes their greater susceptibility to frustration the more striking. It suggests that there are very large differences in personality between the two groups, working in a direction antagonistic to that of the developmental factors.

It will be clear from Table 2, however, that these postulated differences in personality are not revealed by the personality tests used here, for although the Maladjusted group is judged to be slightly more neurotic by their teachers than are the Normal children on the TRS, they appear on the JEPI to be slightly *less* neurotic and more extraverted than the Normal children. None of these differences is statistically significant. We shall consider the significance of the failure of the personality tests to distinguish between the two groups in the Discussion.

DISCUSSION

Several factors may be held to obscure interpretation of the results of this study. The first of these concerns the mode of reinforcement used in the two groups. Nicholson and Gray (1972) found that, in the Normal group, variations in this parameter produced no effect whatever on any of the behavioural measures studied. Their finding is in agreement with Bijou and Baer's (1966) review of this topic, and has been supported by subsequent unpublished work on the effects of differential reinforcement on normal children within the 7-11 age range. But this finding has not, to the writer's knowledge, been replicated in emotionally maladjusted children, although it seems unlikely that the change in mode of reinforcement (which was suggested by the school authorities at Besselsleigh) was responsible for the large and consistent differences in the incidence of the frustration effects between the two populations. Nevertheless, the problem of equating the value of a reward between subjects at different stages of ontogenetic development is a serious one; it is of course very similar to the problem which confronts those who seek to interpret differences in behaviour between phylogenetically different species (e.g. Bitterman, 1965).

A second procedural objection which may be raised concerns the different lengths of prediscrimination training to which individual subjects were exposed. Although such differences are inevitable when an experiment involves the establishment of asymptotic response levels for individual subjects, it is necessary to test the possibility that this variable contributed to individual differences in the various behavioural measures. Analysis of the present data confirmed Nicholson and Gray's (1972) finding that length of pre-training was unrelated to the incidence of behavioural contrast, peak shift, mean shift or any of the other behavioural measures studied.

A further qualification arises from the failure of three subjects in each group to show the phenomenon of mean shift, which seems to be the most sensitive of the various indices of frustration. This failure seems to indicate that these subjects did not find the situation frustrating, and closer analysis of the data suggests that this may have stemmed from one or more of several causes: children who do not show mean shift (or even show a shift of the mean *towards* $S\Delta$) either (a) have not learned

the discrimination properly, (b) have overlearned the discrimination, or (c) are at the top of the age range being studied. One subject in each group fell into the first category. Subsequent inspection of the Maladjusted subject's psychiatric file revealed that this boy was particularly poor at visual discrimination, and re-examination of his behaviour during discrimination training suggested that training had been terminated prematurely. The other four exceptional subjects tended to fall into both categories (b) and (c): we have already seen that frustration effects tend to decline with advancing age, and the fact that overlearning a discrimination reduces or eliminates emotional effects is entirely consistent with the animal literature (see e.g. Terrace, 1966a, b). Although the exclusion of subjects is always a dangerous procedure, it seems that we do at least have some understanding of the causes of aberrance in the present instance.

A final problem of interpretation arises from the failure of the personality inventories used to distinguish between normal and emotionally maladjusted children. This failure, however, is explicable. It seems reasonable to assume that neither children nor their teachers make the judgements demanded of them by personality inventories in an absolute fashion, but rather as a series of comparisons; children compare themselves with their peers, and teachers compare them with the children they have taught over the years. Since none of the teachers at Besselsleigh School had taught at other than a special school for several years, and all the maladjusted boys had been at the school for over a year, it seems probable that, while the maladjusted boys and their teachers might apply similar standards of normality when answering the JEPI and the TRS, these norms would not be the same as those employed by either the normal children or their teachers. It is therefore inappropriate to compare personality data between the two populations. These considerations do not, of course, affect interpretation of *within-group* personality data, nor do they affect behavioural comparisons between the two groups. Cattell's personality inventories (the Children's Personality Questionnaire and the High School Personality Questionnaire: Cattell, 1966) were also given to the maladjusted boys, and the similarities which appeared between their group profile and that of groups of American boys suffering from personality and conduct disorders (see Nicholson, 1972), coupled with the circumstances of the boys' attendance at a special school and the contents of their psychiatric files, seem adequate justification for assuming that they were indeed exceptional. Conventional personality questionnaires are not designed to be used as "screening" instruments, and the Children's Behaviour Questionnaire, which is designed to perform this function, was not available when the normal children were tested.

None of these objections seems sufficiently potent to question the validity of the main finding of this study: emotionally maladjusted boys display significantly greater incidence of behavioural indices of frustration than younger normal children, despite the fact that susceptibility to the effects of frustration is known to decline with advancing age. This apparent anomaly may be explained by two assumptions: (1) that emotional maladjustment is associated with extremes of personality, and (2) that individual differences in personality are causally linked with individual differences in susceptibility to reinforcing (including frustrating) events, in the manner proposed by Gray (1970), and subsequently elaborated by Gray (1973) and

Nicholson (1973). The present results may also point up an important feature of the condition of emotional maladjustment and suggest a powerful objective tool for its diagnosis.

SUMMARY

Groups of normal schoolchildren (aged 7–11) and emotionally maladjusted boys (aged 11–15) were exposed to operant successive discrimination training procedures. Subjects in both groups displayed behavioural contrast and mean shift, two phenomena which stem from frustration, and also tended to generalize responding to unreinforced stimuli adjacent to a stimulus associated with reinforcement. The overall behaviour of the two groups was qualitatively similar, but the emotionally maladjusted boys, although older and less likely on this score to be susceptible to the effects of frustration, showed significantly greater incidence of the frustration effects than did the normal children. They also showed a significantly greater tendency to generalize responding.

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TRENDS IN THE DEVELOPMENT OF REPRESENTATIONAL PLAY IN INFANTS FROM ONE TO THREE YEARS—AN OBSERVATIONAL STUDY

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INTRODUCTION

It is generally recognized that through his play the child not only reveals his emotional needs and individual interests, but also his cognitive maturity. Some authors have tried to classify children's games according to the underlying mental structure. Bühler (1933), Bühler (1935, 1967) and Piaget (1967) are agreed that play in early infancy consists in the exercise of the child's developing functions, irrespective of the nature of the material handled ("function" or "practice games"). In the second year of life a new type of play is seen to emerge, named "fiction", "pretend" or "symbolic play", which pre-supposes not only that the child's actions have acquired meaning in relation to the objects around him, but also that he is developing the ability to represent an absent object or experience by means of his own actions, usually with the aid of objects that resemble the represented content to a greater or lesser degree. The particular significance of this type of play lies in the fact that its emergence coincides with that of verbal language. Both are indeed being seen as manifestations of the same representative or "semiotic" function (Piaget, 1967). The close relationship between symbolic play and language is stressed by Lunzer (1959), who sees play as an active form of representation before language is sufficiently advanced to fulfil this function unaided. "It would follow that the cognitive functions of play and language are essentially similar" (Hulme and Lunzer, 1966, p. 108). In his systematic observational study of children's play, Lunzer (1959) found the degree of organization (a composite of adaptiveness and integration) to be the most consistent indicator of play maturity within the age range of 2-6 yr.

The possibilities in using play observation as a means of assessing a child's language potential is attracting the attention of students of language handicaps. Myklebust (1956, 1960, 1961) sees the acquisition of meaningful experience, which he calls "inner language", as the prerequisite to the subsequent stages of "receptive" and "expressive" language. He holds that an aphasic child may fail to recognize for example, a toy fire engine as representing a real one, and advocates a training in the meaningful relating of miniature replicas of real objects as a first step in language acquisition. Sheridan (1964, 1969) uses real-sized and miniature objects to evaluate a child's "personal store of concepts-in-code" and his capacity for pretend play. She introduces a clinical screening test, based on her observations, but states that this

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is not based on a normative study. Sheridan, like Holt and Reynell (1967) express the view that in this area systematically obtained observational data are still lacking.

The present study is intended to be a step towards filling this gap. It aims at establishing developmental trends in the meaningful use of miniature objects during the age period crucial in the development of language. In so far as the objects used are perceptually close to the real objects which they are meant to represent, a very early stage of symbolic activity is being investigated. The study is based on observation of spontaneous non-verbal behaviour in a structured play situation.

METHOD

Subjects

The subjects of the study were 244 children at 7 age levels, i.e. 12, 15, 18, 21, 24, 30 and 36 months. They were seen within 3 weeks of the exact age and it was aimed at keeping the number of boys and girls within each group fairly equal. The children came from a Welfare Centre and two Day Nurseries in North London, a Creche attached to a Welfare Centre and a research nursery group in Inner London. From the lists of all children attending these centres, children were chosen at random on the sole basis of chronological age and that they should not be known to be physically or mentally handicapped. Table 1 shows the distribution of subjects by age and sex.

TABLE 1. SUBJECTS BY AGE AND SEX

Age (months)	Boys	Girls	Total
12	16	14	30
15	22	20	42
18	20	18	38
21	18	17	35
24	18	16	34
30	15	18	33
36	16	16	32
Total	125	119	244

It was important to establish that the sample used was not grossly biased in respect to social class. The latter was established by the father's occupation, following the Registrar General's Classification of Occupations (1966). For some subjects the father's occupation could not be ascertained. These were some of the children attending Day Nurseries who admit children on grounds of social priority and the information gathered about the families' living standard justifies their inclusion in the lowest category. Comparison with the figures from the England and Wales 10 per cent sample of the 1966 Census (Table 2) suggests that the sample is reasonably representative of the population as a whole.

TABLE 2. SOCIAL CLASS DISTRIBUTION COMPARED WITH THE ENGLAND AND WALES 10 PER CENT SAMPLE OF THE 1966 CENSUS

	I & II (%)	III (%)	IV & V (%)
Present Study	23	44	32
E & W Sample	19	51	30

Material

The material consisted of four sets of miniature objects, so chosen that within each set they were interrelatable in various ways. Objects were chosen which could be presumed to be within every child's experience, to minimize cultural differences. The following sets were used:

- I—Doll (girl), spoon, cup, saucer, comb, brush.
- II—Doll (girl), bed, blanket, pillow.
- III—Doll (boy), table, chair, plate, fork, knife, tablecloth.
- IV—Truck, trailer, man, four small wooden logs.

To give an idea of the size of the toys used, the doll in set I measured $6\frac{1}{2}$ cm in height, the dolls in sets II and III $3\frac{1}{2}$ cm, the man in set IV 2 cm. The other objects were approximately to scale.

Procedure

Whenever possible, the child was seen in the presence of his mother or another familiar person. He was normally seated at a small table, with the exception of some of the 12 and 15 months olds, who were more at ease on their mother's lap, in which case the toys were set out on a large table. After a brief warming-up period, the material was introduced. The toys of each set were presented in a standard arrangement and simultaneously, with the exception of set I, which was given in three stages: (a) the doll on its own, (b) cup, spoon, saucer added, (c) comb, brush added. This was to elicit responses to the doll as such and not to overwhelm the youngest children with too many objects at a time. In order to eliminate verbal comprehension, the author restricted her verbalizations to the minimum necessary to keep the situation natural and the child motivated, avoiding in particular, any verbal instructions or clues as to the nature of the objects presented. The child was left to explore each set of toys spontaneously, until he indicated that he had finished with it, or when he had patently exhausted his behaviour repertoire and became repetitive or destructive. The original plan to fix a time limit was abandoned when it was seen during pilot experimentation that the length of time a child remained motivated and produced new ideas varied too much according to age, resourcefulness and personality of the child. Some children, for instance, assembled the toys rapidly into a meaningful arrangement, seeing this as a "task", while others acted out long play sequences. A set time would have caused boredom in some and frustration in other children. The total observation time, including the warming-up period and a short talk with the mother lasted up to 30 min. A full record of all the child's activities, including verbalizations was made, but the latter do not form part of the present study.

Analysis of data

From the records all behaviour indicating a meaningful use by the child of the given objects and particularly every meaningful relating of objects to each other was tabulated. The starting point of the analysis are thus the simplest objectively describable behaviour units. As the study was to be based on overt activity irrespective of verbalization, the analysis had to be centred on the more conventional use of the given objects, thus sacrificing some idiosyncratic and perhaps subjectively meaning-

ful behaviour, the meaning of which could, however, only be established with the help of the child's verbal comments. Without accompanying verbalization, the act of turning over the cup above the doll's head, for instance, cannot be unequivocally interpreted as meaningful and only the speaking child will tell that he is "washing dolly's hair" or "pouring coffee over her". The restriction to conventional uses of the material minimizes, but does not eliminate problems of interpretation. Even apparently clear-cut items such as "feeds doll" were often ambiguous in their initial stages of development. Great care was taken, therefore, to define each item in an objective manner. In the following presentation the items are explained, but not fully described for reasons of space. The main findings will be presented for each situation separately, selecting all major behaviour items, that is those which (a) at any age reach at least 50 per cent frequency and/or (b) show a clear developmental trend. An item was registered as present, if it occurred at least once during the session.

RESULTS

Situation I—material: doll, cup, spoon, saucer, comb, brush

The data presented in Table 3 show that in spite of the small size of the objects used, the majority of the 12 months group was able to make discriminating and appropriate use of the doll, spoon, cup or saucer and that at 15 months the correct use of comb or brush was added to this. From 24 months onwards the saucer was used as such, while the younger children tended to use it as a plate.

TABLE 3. SITUATION I—PERCENTAGE OF CHILDREN IN EACH AGE GROUP DISPLAYING THE DESCRIBED BEHAVIOUR

Age (months)	N	Item number								
		1	2	3	4	5	6	7	8	9
12	30	83	67	7	63	33	3	0	13	13
15	42	90	93	19	60	64	21	12	24	28
18	38	100	100	26	66	76	16	11	32	21
21	35	95	97	46	60	49	14	11	46	52
24	34	100	97	53	35	32	15	0	50	71
30	33	100	94	85	15	24	9	3	55	79
36	32	97	94	81	16	28	6	0	53	75

Brief description of items:

- 1—discriminative handling of doll.
- 2—relates spoon to cup or saucer, e.g. places spoon in cup; stirs; "picks up food" from saucer.
- 3—places cup on saucer.
- 4—feeds self (with spoon, or "drinks" from cup).
- 5—combs or brushes own hair.
- 6—feeds other person.
- 7—combs or brushes other person's hair.
- 8—feeds doll.
- 9—combs or brushes doll's hair.

The most striking developmental trend noted was that at the younger age levels the children tended to apply the activities of feeding and combing/brushing predominantly to their own person, while with increasing age, these were increasingly

applied to the doll. Figure 1 illustrates the inverse trends of self-related and doll-related behaviour for feeding and combing/brushing combined. (It should be noted that the incidence of this is not directly derived from columns 4-9 of Table 3, as the same child may show one or both behaviours.) Self-related activities progressively give way to doll-related behaviour, the transition occurring around 21 months, when the incidence of both types of activity is about equal. A third type of behaviour, i.e. offering "food" or combing/brushing another person present, the trend of which is also presented in Fig. 1, did not reach 50 per cent frequency at any age level, but showed a significant trend of initial increase, followed by a progressive decrease in incidence, which is similar to that of self-related behaviour.

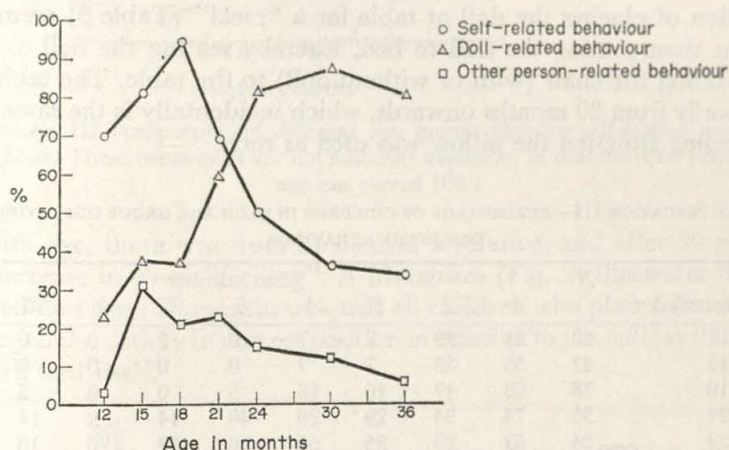


FIG. 1. Situation I—proportion of different age groups showing self-related, doll-related and other person-related behaviour. (Note: These behaviours are not mutually exclusive, so that the total percentage at any age can exceed 100.)

Situation II—material: doll, bed, blanket, pillow

TABLE 4. SITUATION II—PERCENTAGE OF CHILDREN IN EACH AGE GROUP DISPLAYING THE DESCRIBED BEHAVIOUR

Age (months)	N	Item number			
		1	2	3	4
12	30	0	10	0	0
15	42	5	2	0	0
18	38	29	26	16	3
21	35	54	63	34	3
24	34	85	88	74	21
30	33	94	97	94	52
36	32	100	100	100	81

Brief description of items:

- 1—relates doll to bed (lies or seats doll on bed).
- 2—relates blanket or pillow to doll (covers doll with blanket, wraps doll into blanket, lies doll on blanket or pillow).
- 3—puts doll to bed, involving doll, bed and blanket (or pillow).
- 4—uses pillow correctly (under doll's head, correct position on bed).

The objects connected with the bed-situation were appropriately utilized at a later age than the feeding utensils and comb or brush (Table 4). Not until the age of 21 months did the majority of the age group demonstrate the idea of relating the blanket to the doll or the doll to the bed and only at 24 months were doll, blanket and bed brought together in an integrated "putting-doll-to-bed" manner. The pillow was mostly used unspecifically (e.g. like a blanket) until the age of 30 months. It will be noted, that the age at which the idea of putting the doll to bed emerged, i.e. 21 months, is the same that was seen to be crucial in the development of doll-centred activities in the preceding situation.

Situation III

The notion of placing the doll at table for a "meal" (Table 5) seemed a later development than putting the doll to bed, whereby seating the doll on the chair preceded relating the chair (with or without doll) to the table. The tablecloth was used specifically from 30 months onwards, which incidentally is the same age when in the preceding situation the pillow was used as such.

TABLE 5. SITUATION III—PERCENTAGE OF CHILDREN IN EACH AGE GROUP DISPLAYING THE DESCRIBED BEHAVIOUR

Age (months)	N	Item number							
		1	2	3	4	5	6	7	8
12	30	23	33	7	7	0	0	0	0
15	42	55	43	7	7	0	0	0	0
18	38	63	47	16	16	5	0	0	3
21	35	74	34	29	29	40	14	9	14
24	34	62	29	35	53	50	32	26	18
30	33	82	9	45	79	85	76	64	55
36	32	100	13	25	94	100	94	91	91

Brief description of items:

1—relates fork or knife to plate.

2—feeds self.

3—feeds doll.

4—implied or overt doll feeding. (This item includes the previous, but adds arrangements where e.g. plate and cutlery are being placed in front of the doll, without the feeding being actually carried out).

5—places doll on chair.

6—places chair in correct position to table.

7—seats doll at table involving doll-chair-table.

8—uses tablecloth correctly.

Figure 2 demonstrates analogous trends to those registered for situation I. Self-related activities (which apart from self-feeding included such as the child wiping his own face with the tablecloth, trying to seat himself on the tiny chair etc.), and doll-related activities (seating the doll on the chair, implied or overt doll-feeding, covering the doll with the cloth, etc.) follow again inverse trends, with a slight peak in self-relating behaviour at 18 months and a crossing of the curves near 21 months.

A comparison of columns 3 and 4 of Table 5 shows that while the percentage of children actually "feeding" the doll or placing it in a "meal" situation increased

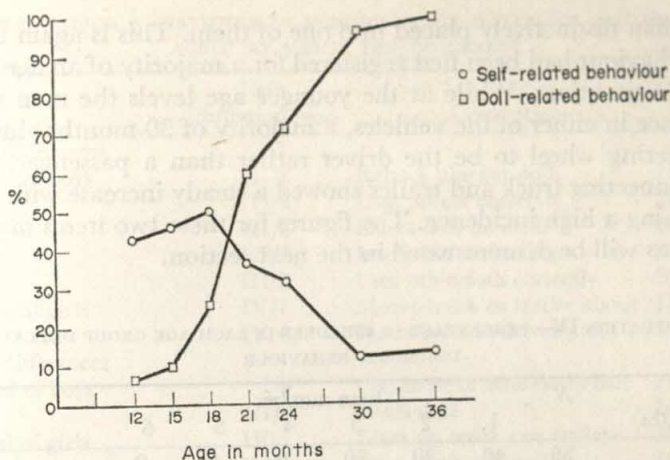


FIG. 2. Situation III—proportion of different age groups showing self-related and doll-related behaviour. (Note: These behaviours are not mutually exclusive, so that the total percentage at any age can exceed 100.)

steadily with age, there was from 21 months a relative, and after 30 months even absolute decrease in overt “feeding”. A histogram (Fig. 3) illustrates these trends. It was noted that from 30 months onwards all children who placed the doll at a laid table arranged the cutlery in correct position in relation to the doll, as if to imply that the doll will feed itself.

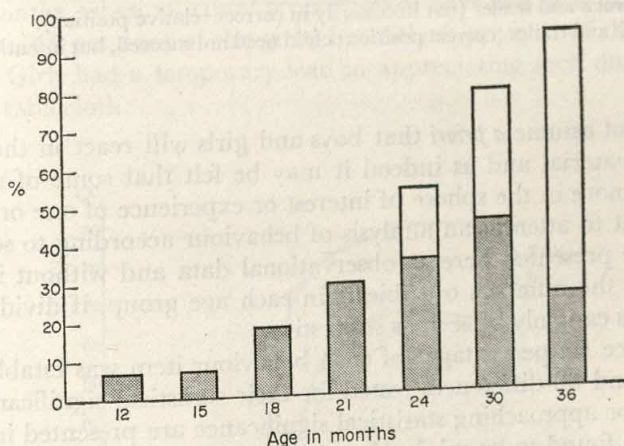


FIG. 3. Situation III—increase with age in the proportion of children “feeding the doll” and the relative decline of this activity with age, as it is gradually replaced by “implied doll feeding”. The columns represent placing the doll into a feeding situation (item 4), the shaded areas represent overt feeding (item 3).

Situation IV—material: truck, trailer, man, logs

As the data in Table 6 show, the truck and trailer were apparently seen as vehicles that can be moved about from 15 months onwards, but not until 21 months

was the little man distinctively placed into one of them. This is again the age when doll-related behaviour had been first registered for a majority of an age group in the preceding three situations. While at the younger age levels the man was made to occupy any place in either of the vehicles, a majority of 30 months olds placed him behind the steering wheel to be the driver rather than a passenger. Attempts at lining up or connecting truck and trailer showed a steady increase with age without, however, reaching a high incidence. The figures for these two items mask a marked sex difference, as will be demonstrated in the next section.

TABLE 6. SITUATION IV—PERCENTAGE OF CHILDREN IN EACH AGE GROUP DISPLAYING THE DESCRIBED BEHAVIOUR

Age (months)	N	Item number					
		1	2	3	4	5	6
12	30	40	30	20	0	0	0
15	42	71	38	19	0	0	0
18	38	95	42	24	0	5	0
21	35	100	60	66	11	20	6
24	34	91	68	68	18	24	15
30	33	100	88	94	73	52	36
36	32	100	88	100	88	59	53

Brief description of items:

1—moves truck or trailer about.

2—relates log (logs) to truck or trailer.

3—places man in truck or trailer.

4—places man in driver's seat.

5—lines up truck and trailer (not necessarily in correct relative position).

6—joins truck and trailer (correct position; child need not succeed, but intention must be clear).

Sex differences

As one cannot assume *a priori* that boys and girls will react in the same way to the presented material and as indeed it may be felt that some of the material is sex-biased, i.e. more in the sphere of interest or experience of one or the other sex, it was important to attempt an analysis of behaviour according to sex. The differences found are presented here as observational data and without inference as to their causes. As the numbers of subjects in each age group, if divided by sex, are small, the results can only be seen as suggestive.

The incidence (in percentage) of each behaviour item was established for each sex separately and all differences tested for their statistical significance. All differences reaching or approaching statistical significance are presented in Table 7. Sex differences were found to be minimal and inconsistent in the 12–18 months range, but became more marked from 21 months onwards. Differences were *transient*, i.e. displayed by a larger proportion of one sex through part of the age range, though the other sex caught up eventually, or *persistent*, sometimes even widening with age.

Girls tended to be "ahead" (this term is being used only in the above statistical sense) of boys in some of the doll-related activities, particularly in the active care for the doll. Brushing or combing the doll showed a persistent sex difference (illustrated by Fig. 4) and only girls were seen to give the doll a particular hairstyle.

TABLE 7. ITEMS IN WHICH A STATISTICALLY SIGNIFICANT SEX DIFFERENCE WAS DEMONSTRATED AND AGE(S) AT WHICH THIS OCCURRED*

	Item (Situation No.)	Description	Age (months)	
(a) Transient differences				
	Girls ahead of boys	II/2 Relates blanket doll	21****	
		II/3 Uses pillow correctly	24****	30****
		III/2 Places doll on chair	24****	
		III/7 Implied doll feeding	24****	
		III/8 Uses tablecloth correctly	30***	
	Boys ahead of girls	IV/1 Moves truck or trailer about	15**	
		IV/4 Places man in driver's seat	30**	
(b) Persistent differences				
	Girls ahead of boys	I/9 Combs or brushes doll's hair	21***	36**
		III/6 Feeds doll	24****	36****
	Boys ahead of girls	IV/5 Lines up truck and trailer	24****	36****
		IV/6 Joins truck and trailer	24****	36****

*Using formula for the standard error of the difference between two proportions (see Hill 1961, p. 308).

**approaching significance at 5 per cent level.

***significant beyond 5 per cent level.

****significant beyond 1 per cent level.

There was an interesting difference with regard to doll feeding. While in situation III the proportion of boys placing the doll in a meal situation eventually reached that of the girls, the relative decline in overt doll-feeding was more marked in boys, so that at 36 months, when an equal proportion of boys and girls placed the doll in a meal situation, 44 per cent of the girls, but only 6 per cent of the boys actually "fed" the doll. Girls had a temporary lead in appreciating such domestic detail as the pillow and tablecloth.

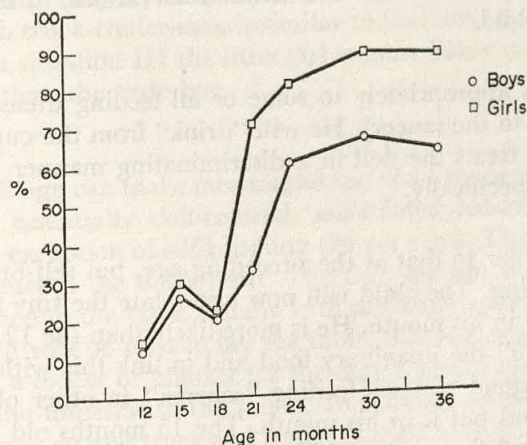


FIG. 4. Situation I—sex difference in combing or brushing doll's hair (item 9), showing persistently higher incidence in girls.

There were no obvious sex differences for most activities not related to the doll, such as placing the cup on the saucer, the chair to the table, the logs in the truck or trailer.

Boys showed a transient lead in some of the activities relating to the truck-trailer situation. The most marked and persistent difference in favour of the boys was, however, their interest in the mechanical aspects of the truck-trailer situation, lining them up and trying to join them in various ways (Fig. 5). Only boys were seen to "mend" wheels or to put "petrol" in the truck.

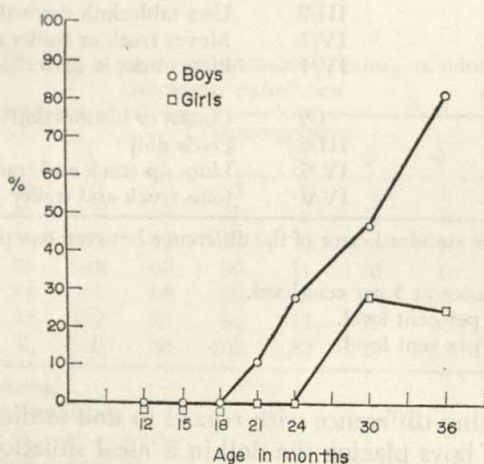


FIG. 5. Situation IV—sex difference in joining truck to trailer (item 6), showing persistently higher incidence in boys.

Stages of development—cross-sectional view

In this section an attempt is made to summarize behaviour found typical for each age level. The skeleton for these descriptive summaries will be provided by those items that occurred with at least 50 per cent frequency at a given age, but this will be supplemented by more incidental observations, to bring to life a hypothetical "average" child.*

12 months

The child reacts appropriately to some or all feeding utensils (e.g. relates the spoon to the cup or to the saucer). He will "drink" from the cup or "feed" himself with the spoon. He treats the doll in a discriminating manner, but the remaining objects are used unspecifically.

15 months

Behaviour is similar to that at the preceding age, but self-brushing or combing is added to self-feeding. The child will now also relate the tiny fork or knife to the plate or put the fork in his mouth. He is more likely than the 12 months old clearly to "stir" or "pick up" the imaginary food and to link this with the action of self-feeding. He may extend this self-feeding "schema" to other objects, e.g. dip the log into the truck and put it in his mouth. The 15 months old will push the little truck or trailer to and fro on the table.

*Standardised data is available and has been submitted to the N.F.E.R. with a view to publication.

18 months

This is the peak age for self-related activity. The child will not only feed and brush/comb himself, but he may also wipe his face with the toy blanket or tablecloth, or try to sit down on the toy chair. The doll is now handled with more discrimination (e.g. stood upright, made to jump, or cuddled, but it is not, as a rule being fed, combed etc.). There may be some combinational play with doll, blanket and bed, without, however, a clear indication of trying to put the doll to bed.

21 months

This appears to be a transitional stage, at which doll-related activities for the first time equal or slightly outweigh self-related behaviour. The child will now feed (45 per cent) and comb/brush the larger doll and display at least one kind of doll-related activity in situation III. In the bed-situation, the child will cover or wrap up the doll with the blanket or put the doll on the bed with the clear intention of putting it down to sleep, although these activities are not necessarily integrated and the pillow is only used as an additional blanket or as a mattress.

In the truck-trailer situation, the child will place the logs and the little man into one of the vehicles.

Sex differences. Girls of this age are more likely to display the above-mentioned doll-related activities than boys.

24 months

Doll-related behaviour is now dominant. The child will feed the doll or place it in a meal-situation in both situations I and III. He will seat the doll on the chair, but this will not yet, as a rule, be related to the table. When putting the doll to bed, the child will now include the essential elements (i.e. doll, bed, blanket) in an integrated manner, but the pillow is still being used unspecifically. More care may go into making of the bed than at the previous stage (e.g. the child may pat the blanket or tuck it in), and he may indicate that he has various other ideas connected with going-to-bed (e.g. may try to take the doll's shoes off or search for the missing mattress). Play with truck-trailer-man is similar to that at 21 months.

Sex differences. In situation III the little girl is more likely to seat the doll on the chair or to feed it than the little boy.

30 months

The child of this age can make meaningful use of all elements of the given situations. His play is essentially doll-centred, self-related behaviour having mostly faded out, with the exception of self-brushing (24 per cent). The pillow is now being carefully placed beneath the doll's head. The doll will not only be seated on the chair, but also pushed to the table, usually with plate and cutlery being put in front of it. The tablecloth will be used to lay the table, but may also be used in various other ways (e.g. as a feeder or blanket for the doll, a glasscloth to wipe the cutlery or as a carpet or lino underneath the table). In situation IV the little man will be placed in the driver's seat and truck and trailer aligned.

The child is now likely to search for absent objects which he needs for his play or he may even create these objects himself (e.g. fold a piece of cloth to make a

pillow case or make a bench for the little man with the help of the logs). The doll may not only be put to bed, but also "awakened" after its "sleep" and in situation III the child may act out a sequence of meal and bedtime, making table and tablecloth serve a dual purpose. More action than previously seems to be attributed to the doll itself, which may be made to "walk" to its bed, "hold" knife and fork, or the little man may "hold" a log or "mend" a wheel.

Sex differences. The little boy may not yet use pillow and tablecloth specifically, while the little girl may not line up truck and trailer.

36 months

As the 30 months old has practically reached the ceiling of the possibilities inherent in the material, not much progress is discernible along the lines of the present analysis. There is now a marked decline in overt versus implied feeding of the doll, that is the child is more likely to place the doll at the laid table than actually to feed it. In situation IV the child will now attempt—mostly successfully—to hook the trailer on to the truck. The tendency to activate the doll is even more marked than at 30 months (e.g. the doll may be made to "lay the table" or "wash the dishes", or the man may "load" and "unload" the truck instead of the child acting for him).

Sex differences. In situation III the little girl may still feed the doll overtly (44 per cent), while the little boy is unlikely to do so. She may also "put the doll to bed", laying it on the table and covering it with the tablecloth (44 per cent), which is significantly rarer with boys of this age (13 per cent). While the little boy is now very proficient in hooking truck and trailer together, the little girl is more likely to move them about separately.

DISCUSSION

The present study demonstrates that the meaningful handling and relating of miniature objects undergoes a rapid development during the age period under consideration. It was seen that already the "average" 1-yr old can identify a miniature replica with the object it stands for, but this applies only to a few objects, while at the end of the age range all objects presented were being used appropriately and the child was able to create, by their means, previously experienced or imagined situations. Progress in representational play depended largely on the development of the underlying concepts and within the three "domestic" situations (Situations I, II and III) a broad progression from the appropriate use of the feeding utensils, to comb or brush, blanket-bed, chair-table was ascertained. The reason for this progression needs elucidating by further research, which would investigate the influence of factors such as the size and scale of reduction of the objects, the number of toys presented at a time and their perceptual closeness to the objects portrayed. It would be important to investigate the influence of experience, which may vary with age, sex or other circumstances of the child's life. The younger child may be more familiar with a cot than a bed or may not have had the opportunity of sitting on a chair. The responses of mentally retarded children, who in clinical practice were observed in the same situations, and whose experience with beds, chairs, etc. was comparable to those of normal children of the same chronological age, suggested

that the outlined order is probably determined more by developmental than actual age, but this needs verification. Particular life experiences may add a personal realistic touch to a child's play (as in the instance where a little girl, who had a new baby sister, "fed" the doll with an imaginary "bottle" and even "brought up the wind" afterwards), but not necessarily affect the child's ability to see the doll as a person.

Within the framework of this study, the most conspicuous, objectively demonstrable developmental change was the transition from activities relating to the child's own body to activities directed towards the doll, which thus comes to symbolize a person. The inverse trend of these activities suggests that the one is the genetic precursor of the other. The fact that self-relating activities tended to follow in Gesell's (1938) terminology a "focal" trend, fits in with this interpretation, as Gesell sees such behaviours as progressive up to a certain stage, from when they are being superseded by more mature behaviour. There would thus be a stage (a) when the miniature object would not evoke any meaningful reaction at all, (b) when it would have acquired meaning, but only in relation to the child himself, (c) when it can be meaningfully related to the doll. The findings are in close agreement with Sheridan's (1969) who comments that, before applying objects to another person, teddy or doll, the child demonstrates their use on his own body, which she calls "definition by use". Sheridan sees application to another *person* as a developmental step between application to self or to a doll (teddy). The present observations do not suggest such a clear-cut in-between stage. Other-person-related behaviour had at no age a very high incidence and its trend was similar to self-related behaviour, which suggests that a child may become able to go directly over to doll-related behaviour without necessarily having gone through an intermediary stage. The ability to transfer actions, first practised on himself in a playful manner, on to another object or a doll, and therefore to ascribe to it actions analogous to the child's own, is indeed seen by Piaget (1967) as the decisive step from the "symbolic schema", still belonging to the "sensori-motor period", to symbolic play proper. The significance of this process of "decentration" for the development of symbolic thinking is also stressed by Werner (Langer, 1970), who speaks of "perspectivism" as the child's increasing ability to sympathize, empathize and adopt the perspectives of others, which links the development of symbolic thinking to that of self-awareness and awareness of others.

In the present sample of normal children the transition from self-centred to doll-centred behaviour occurred around 21 months and the latter was well established by 24 months, irrespective of the material used. During the transitional period some children went indeed through a sequence of actions corresponding to the developmental sequence. Thus a boy of 21 months placed the little chair on the floor and tried to sit down on it, before placing the doll on it. Another boy of the same age placed the tablecloth under his chin like a feeder and then did the same to the doll. Some children brought the spoon towards their mouth, but inhibited their action and "fed" the doll instead.

There seemed to be within the second broad period of doll-related behaviour, a progressive animation of the doll, culminating at a point when the doll became an agent in its own right rather than a recipient of the child's care. This became a

noticeable (though not universal) tendency around 30 months and may account for the decrease in actually "feeding" the doll towards the top of the age range. At this stage, children sometimes expressed identification with the doll (like the girl who placed the doll prone on its bed with the comment "I sleep like that") and projected their own dislikes on to it ("she doesn't want to go to bed", "she says she doesn't want her dinner"). This aspect needs more investigation because of its implication for the use of projective techniques with young children. "Age" and "sex" of the doll will presumably influence the child's handling of it and identification with it.

It would appear to be more than coincidental that the age at which play became doll-orientated (i.e. 21 months) is the same at which children normally start putting words together, this stage of decentration possibly being a precondition to the relating of concepts in spoken language.

SUMMARY

Two hundred and forty-four children at seven age levels between one and three years were observed in four standard situations, in which miniature replicas of everyday objects were presented for the child's free use. The objective was to delineate trends in the meaningful use of these materials. There was a rapid development from the appropriate use of a few objects only, to comprehension of all elements of the sets presented. Activities which centred on the child's own body, progressively gave way to doll-orientated activities, the transition taking place around 21 months, the age when children normally start putting words together. Descriptive cross-sections of typical behaviour at each age level were outlined, taking account of sex differences.

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PSYCHOLOGICAL PROBLEMS IN UGANDAN SCHOOL CHILDREN: A CONTROLLED EVALUATION

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INTRODUCTION

THERE has been a remarkable increase in psychiatric services in sub-Saharan Africa during the past decade with a concomitant rise of literature, well summarized by German (1972). Child psychiatry, on the other hand, has only very recently been introduced into Africa (Asuni, 1972) in the form of the opening of some child guidance clinics. These clinics have generally been patient orientated and have provided little epidemiological data pertaining to the incidence and types of particular psychiatric disorders in African children. Cederblad (1968), in a pioneering investigation, surveyed three complete Sudanese villages near Khartoum and found an average psychiatric morbidity of 8 per cent amongst children aged 3-15 yr. A further 20 per cent of all children exhibited "moderate symptoms" which were defined as symptoms which did not cause any acute problems and could generally be coped with by the families. Her survey (Cederblad, 1968) presents a number of problems, however, which may significantly affect the reported results. All families in the villages were interviewed by medical students who had received only minimal training in taking a psychiatric history and had not volunteered to participate in the programme. Furthermore, symptoms such as nail biting and enuresis were seen as evidence of psychiatric disturbance, a view few present day investigators would share (Mensch *et al.*, 1959; Tapia *et al.*, 1960; Rutter, 1965).

Giel (1970) working in Ethiopia has given some anecdotal material about the problems encountered in visiting a local Remand Home but was unable to confirm his impression in a methodologically more rigorous study. In another investigation Giel and Vanluijk (1969) and Giel, Bishaw and Vanluijk (1969) state, however, that children were rarely brought to a rural health centre for psychiatric complaints while a surprisingly high number (19.5 per cent) of adult patients presented with a primary psychiatric condition. Other recent studies dealing with psychiatric problems in African children present various types of case material but no epidemiological data (Egdell and Stanfield, 1972; Goodall, 1972).

The present investigation then was designed to provide some answers to questions regarding the incidence and types of psychological disturbances as found in Ugandan primary school children. These data were required for the development of integrated child psychiatric services in that country, a task given to the author upon his arrival in 1971. The study furthermore tried to establish how non-medical personnel could be utilized in the recognition and possible treatment of psychological disorders in children.

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is not based on a normative study. Sheridan, like Holt and Reynell (1967) express the view that in this area systematically obtained observational data are still lacking.

The present study is intended to be a step towards filling this gap. It aims at establishing developmental trends in the meaningful use of miniature objects during the age period crucial in the development of language. In so far as the objects used are perceptually close to the real objects which they are meant to represent, a very early stage of symbolic activity is being investigated. The study is based on observation of spontaneous non-verbal behaviour in a structured play situation.

METHOD

Subjects

The subjects of the study were 244 children at 7 age levels, i.e. 12, 15, 18, 21, 24, 30 and 36 months. They were seen within 3 weeks of the exact age and it was aimed at keeping the number of boys and girls within each group fairly equal. The children came from a Welfare Centre and two Day Nurseries in North London, a Creche attached to a Welfare Centre and a research nursery group in Inner London. From the lists of all children attending these centres, children were chosen at random on the sole basis of chronological age and that they should not be known to be physically or mentally handicapped. Table 1 shows the distribution of subjects by age and sex.

TABLE 1. SUBJECTS BY AGE AND SEX

Age (months)	Boys	Girls	Total
12	16	14	30
15	22	20	42
18	20	18	38
21	18	17	35
24	18	16	34
30	15	18	33
36	16	16	32
Total	125	119	244

It was important to establish that the sample used was not grossly biased in respect to social class. The latter was established by the father's occupation, following the Registrar General's Classification of Occupations (1966). For some subjects the father's occupation could not be ascertained. These were some of the children attending Day Nurseries who admit children on grounds of social priority and the information gathered about the families' living standard justifies their inclusion in the lowest category. Comparison with the figures from the England and Wales 10 per cent sample of the 1966 Census (Table 2) suggests that the sample is reasonably representative of the population as a whole.

TABLE 2. SOCIAL CLASS DISTRIBUTION COMPARED WITH THE ENGLAND AND WALES 10 PER CENT SAMPLE OF THE 1966 CENSUS

	I & II (%)	III (%)	IV & V (%)
Present Study	23	44	32
E & W Sample	19	51	30

Material

The material consisted of four sets of miniature objects, so chosen that within each set they were interrelatable in various ways. Objects were chosen which could be presumed to be within every child's experience, to minimize cultural differences. The following sets were used:

I—Doll (girl), spoon, cup, saucer, comb, brush.

II—Doll (girl), bed, blanket, pillow.

III—Doll (boy), table, chair, plate, fork, knife, tablecloth.

IV—Truck, trailer, man, four small wooden logs.

To give an idea of the size of the toys used, the doll in set I measured $6\frac{1}{2}$ cm in height, the dolls in sets II and III $3\frac{1}{2}$ cm, the man in set IV 2 cm. The other objects were approximately to scale.

Procedure

Whenever possible, the child was seen in the presence of his mother or another familiar person. He was normally seated at a small table, with the exception of some of the 12 and 15 months olds, who were more at ease on their mother's lap, in which case the toys were set out on a large table. After a brief warming-up period, the material was introduced. The toys of each set were presented in a standard arrangement and simultaneously, with the exception of set I, which was given in three stages: (a) the doll on its own, (b) cup, spoon, saucer added, (c) comb, brush added. This was to elicit responses to the doll as such and not to overwhelm the youngest children with too many objects at a time. In order to eliminate verbal comprehension, the author restricted her verbalizations to the minimum necessary to keep the situation natural and the child motivated, avoiding in particular, any verbal instructions or clues as to the nature of the objects presented. The child was left to explore each set of toys spontaneously, until he indicated that he had finished with it, or when he had patently exhausted his behaviour repertoire and became repetitive or destructive. The original plan to fix a time limit was abandoned when it was seen during pilot experimentation that the length of time a child remained motivated and produced new ideas varied too much according to age, resourcefulness and personality of the child. Some children, for instance, assembled the toys rapidly into a meaningful arrangement, seeing this as a "task", while others acted out long play sequences. A set time would have caused boredom in some and frustration in other children. The total observation time, including the warming-up period and a short talk with the mother lasted up to 30 min. A full record of all the child's activities, including verbalizations was made, but the latter do not form part of the present study.

Analysis of data

From the records all behaviour indicating a meaningful use by the child of the given objects and particularly every meaningful relating of objects to each other was tabulated. The starting point of the analysis are thus the simplest objectively describable behaviour units. As the study was to be based on overt activity irrespective of verbalization, the analysis had to be centred on the more conventional use of the given objects, thus sacrificing some idiosyncratic and perhaps subjectively meaning-

ful behaviour, the meaning of which could, however, only be established with the help of the child's verbal comments. Without accompanying verbalization, the act of turning over the cup above the doll's head, for instance, cannot be unequivocally interpreted as meaningful and only the speaking child will tell that he is "washing dolly's hair" or "pouring coffee over her". The restriction to conventional uses of the material minimizes, but does not eliminate problems of interpretation. Even apparently clear-cut items such as "feeds doll" were often ambiguous in their initial stages of development. Great care was taken, therefore, to define each item in an objective manner. In the following presentation the items are explained, but not fully described for reasons of space. The main findings will be presented for each situation separately, selecting all major behaviour items, that is those which (a) at any age reach at least 50 per cent frequency and/or (b) show a clear developmental trend. An item was registered as present, if it occurred at least once during the session.

RESULTS

Situation I—material: doll, cup, spoon, saucer, comb, brush

The data presented in Table 3 show that in spite of the small size of the objects used, the majority of the 12 months group was able to make discriminating and appropriate use of the doll, spoon, cup or saucer and that at 15 months the correct use of comb or brush was added to this. From 24 months onwards the saucer was used as such, while the younger children tended to use it as a plate.

TABLE 3. SITUATION I—PERCENTAGE OF CHILDREN IN EACH AGE GROUP DISPLAYING THE DESCRIBED BEHAVIOUR

Age (months)	N	Item number								
		1	2	3	4	5	6	7	8	9
12	30	83	67	7	63	33	3	0	13	13
15	42	90	93	19	60	64	21	12	24	28
18	38	100	100	26	66	76	16	11	32	21
21	35	95	97	46	60	49	14	11	46	52
24	34	100	97	53	35	32	15	0	50	71
30	33	100	94	85	15	24	9	3	55	79
36	32	97	94	81	16	28	6	0	53	75

Brief description of items:

- 1—discriminative handling of doll.
- 2—relates spoon to cup or saucer, e.g. places spoon in cup; stirs; "picks up food" from saucer.
- 3—places cup on saucer.
- 4—feeds self (with spoon, or "drinks" from cup).
- 5—combs or brushes own hair.
- 6—feeds other person.
- 7—combs or brushes other person's hair.
- 8—feeds doll.
- 9—combs or brushes doll's hair.

The most striking developmental trend noted was that at the younger age levels the children tended to apply the activities of feeding and combing/brushing predominantly to their own person, while with increasing age, these were increasingly

applied to the doll. Figure 1 illustrates the inverse trends of self-related and doll-related behaviour for feeding and combing/brushing combined. (It should be noted that the incidence of this is not directly derived from columns 4-9 of Table 3, as the same child may show one or both behaviours.) Self-related activities progressively give way to doll-related behaviour, the transition occurring around 21 months, when the incidence of both types of activity is about equal. A third type of behaviour, i.e. offering "food" or combing/brushing another person present, the trend of which is also presented in Fig. 1, did not reach 50 per cent frequency at any age level, but showed a significant trend of initial increase, followed by a progressive decrease in incidence, which is similar to that of self-related behaviour.

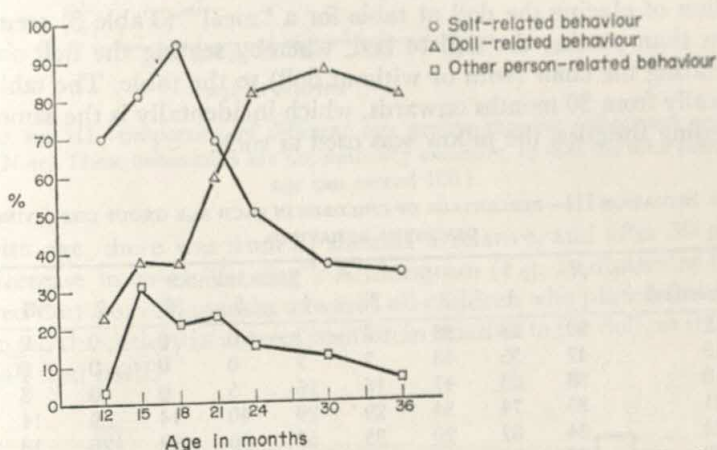


FIG. 1. Situation I—proportion of different age groups showing self-related, doll-related and other-person-related behaviour. (Note: These behaviours are not mutually exclusive, so that the total percentage at any age can exceed 100.)

Situation II—material: doll, bed, blanket, pillow

TABLE 4. SITUATION II—PERCENTAGE OF CHILDREN IN EACH AGE GROUP DISPLAYING THE DESCRIBED BEHAVIOUR

Age (months)	N	Item number			
		1	2	3	4
12	30	0	10	0	0
15	42	5	2	0	0
18	38	29	26	16	3
21	35	54	63	34	3
24	34	85	88	74	21
30	33	94	97	94	52
36	32	100	100	100	81

Brief description of items:

- 1—relates doll to bed (lies or seats doll on bed).
- 2—relates blanket or pillow to doll (covers doll with blanket, wraps doll into blanket, lies doll on blanket or pillow).
- 3—puts doll to bed, involving doll, bed and blanket (or pillow).
- 4—uses pillow correctly (under doll's head, correct position on bed).

The objects connected with the bed-situation were appropriately utilized at a later age than the feeding utensils and comb or brush (Table 4). Not until the age of 21 months did the majority of the age group demonstrate the idea of relating the blanket to the doll or the doll to the bed and only at 24 months were doll, blanket and bed brought together in an integrated "putting-doll-to-bed" manner. The pillow was mostly used unspecifically (e.g. like a blanket) until the age of 30 months. It will be noted, that the age at which the idea of putting the doll to bed emerged, i.e. 21 months, is the same that was seen to be crucial in the development of doll-centred activities in the preceding situation.

Situation III

The notion of placing the doll at table for a "meal" (Table 5) seemed a later development than putting the doll to bed, whereby seating the doll on the chair preceded relating the chair (with or without doll) to the table. The tablecloth was used specifically from 30 months onwards, which incidentally is the same age when in the preceding situation the pillow was used as such.

TABLE 5. SITUATION III—PERCENTAGE OF CHILDREN IN EACH AGE GROUP DISPLAYING THE DESCRIBED BEHAVIOUR

Age (months)	N	Item number							
		1	2	3	4	5	6	7	8
12	30	23	33	7	7	0	0	0	0
15	42	55	43	7	7	0	0	0	0
18	38	63	47	16	16	5	0	0	3
21	35	74	34	29	29	40	14	9	14
24	34	62	29	35	53	50	32	26	18
30	33	82	9	45	79	85	76	64	55
36	32	100	13	25	94	100	94	91	91

Brief description of items:

1—relates fork or knife to plate.

2—feeds self.

3—feeds doll.

4—implied or overt doll feeding. (This item includes the previous, but adds arrangements where e.g. plate and cutlery are being placed in front of the doll, without the feeding being actually carried out).

5—places doll on chair.

6—places chair in correct position to table.

7—seats doll at table involving doll-chair-table.

8—uses tablecloth correctly.

Figure 2 demonstrates analogous trends to those registered for situation I. Self-related activities (which apart from self-feeding included such as the child wiping his own face with the tablecloth, trying to seat himself on the tiny chair etc.), and doll-related activities (seating the doll on the chair, implied or overt doll-feeding, covering the doll with the cloth, etc.) follow again inverse trends, with a slight peak in self-relating behaviour at 18 months and a crossing of the curves near 21 months.

A comparison of columns 3 and 4 of Table 5 shows that while the percentage of children actually "feeding" the doll or placing it in a "meal" situation increased

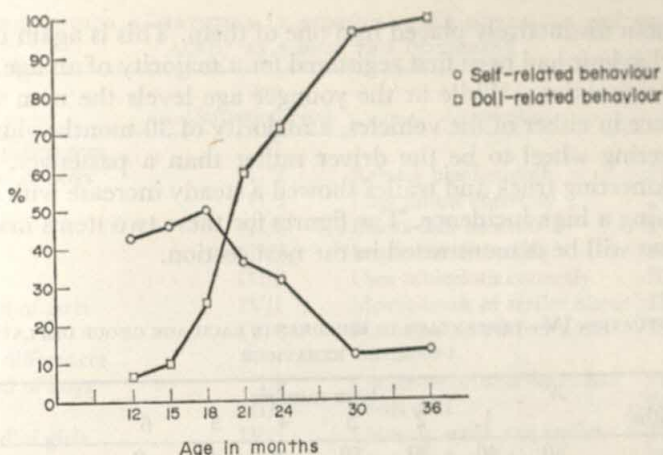


FIG. 2. Situation III—proportion of different age groups showing self-related and doll-related behaviour. (Note: These behaviours are not mutually exclusive, so that the total percentage at any age can exceed 100.)

steadily with age, there was from 21 months a relative, and after 30 months even absolute decrease in overt “feeding”. A histogram (Fig. 3) illustrates these trends. It was noted that from 30 months onwards all children who placed the doll at a laid table arranged the cutlery in correct position in relation to the doll, as if to imply that the doll will feed itself.

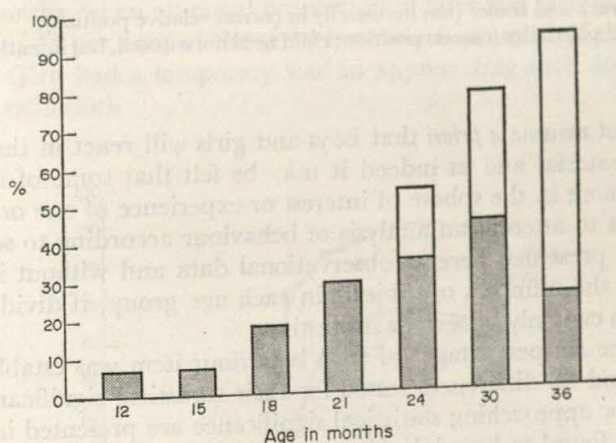


FIG. 3. Situation III—increase with age in the proportion of children “feeding the doll” and the relative decline of this activity with age, as it is gradually replaced by “implied doll feeding”. The columns represent placing the doll into a feeding situation (item 4), the shaded areas represent overt feeding (item 3).

Situation IV—material: truck, trailer, man, logs

As the data in Table 6 show, the truck and trailer were apparently seen as vehicles that can be moved about from 15 months onwards, but not until 21 months

was the little man distinctively placed into one of them. This is again the age when doll-related behaviour had been first registered for a majority of an age group in the preceding three situations. While at the younger age levels the man was made to occupy any place in either of the vehicles, a majority of 30 months olds placed him behind the steering wheel to be the driver rather than a passenger. Attempts at lining up or connecting truck and trailer showed a steady increase with age without, however, reaching a high incidence. The figures for these two items mask a marked sex difference, as will be demonstrated in the next section.

TABLE 6. SITUATION IV—PERCENTAGE OF CHILDREN IN EACH AGE GROUP DISPLAYING THE DESCRIBED BEHAVIOUR

Age (months)	N	Item number					
		1	2	3	4	5	6
12	30	40	30	20	0	0	0
15	42	71	38	19	0	0	0
18	38	95	42	24	0	5	0
21	35	100	60	66	11	20	6
24	34	91	68	68	18	24	15
30	33	100	88	94	73	52	36
36	32	100	88	100	88	59	53

Brief description of items:

1—moves truck or trailer about.

2—relates log (logs) to truck or trailer.

3—places man in truck or trailer.

4—places man in driver's seat.

5—lines up truck and trailer (not necessarily in correct relative position).

6—joins truck and trailer (correct position; child need not succeed, but intention must be clear).

Sex differences

As one cannot assume *a priori* that boys and girls will react in the same way to the presented material and as indeed it may be felt that some of the material is sex-biased, i.e. more in the sphere of interest or experience of one or the other sex, it was important to attempt an analysis of behaviour according to sex. The differences found are presented here as observational data and without inference as to their causes. As the numbers of subjects in each age group, if divided by sex, are small, the results can only be seen as suggestive.

The incidence (in percentage) of each behaviour item was established for each sex separately and all differences tested for their statistical significance. All differences reaching or approaching statistical significance are presented in Table 7. Sex differences were found to be minimal and inconsistent in the 12–18 months range, but became more marked from 21 months onwards. Differences were *transient*, i.e. displayed by a larger proportion of one sex through part of the age range, though the other sex caught up eventually, or *persistent*, sometimes even widening with age.

Girls tended to be "ahead" (this term is being used only in the above statistical sense) of boys in some of the doll-related activities, particularly in the active care for the doll. Brushing or combing the doll showed a persistent sex difference (illustrated by Fig. 4) and only girls were seen to give the doll a particular hairstyle.

TABLE 7. ITEMS IN WHICH A STATISTICALLY SIGNIFICANT SEX DIFFERENCE WAS DEMONSTRATED AND AGE(S) AT WHICH THIS OCCURRED*

	Item (Situation No.)	Description	Age (months)	
(a) Transient differences	Girls ahead of boys	II/2	Relates blanket doll	21****
		II/3	Uses pillow correctly	24**** 30****
		III/2	Places doll on chair	24****
		III/7	Implied doll feeding	24****
	Boys ahead of girls	III/8	Uses tablecloth correctly	30****
		IV/1	Moves truck or trailer about	15**
		IV/4	Places man in driver's seat	30**
(b) Persistent differences	Girls ahead of boys	I/9	Combs or brushes doll's hair	21*** 36**
		III/6	Feeds doll	24**** 36****
	Boys ahead of girls	IV/5	Lines up truck and trailer	24**** 36****
		IV/6	Joins truck and trailer	24**** 36****

*Using formula for the standard error of the difference between two proportions (see Hill 1961, p. 308).

**approaching significance at 5 per cent level.

***significant beyond 5 per cent level.

****significant beyond 1 per cent level.

There was an interesting difference with regard to doll feeding. While in situation III the proportion of boys placing the doll in a meal situation eventually reached that of the girls, the relative decline in overt doll-feeding was more marked in boys, so that at 36 months, when an equal proportion of boys and girls placed the doll in a meal situation, 44 per cent of the girls, but only 6 per cent of the boys actually "fed" the doll. Girls had a temporary lead in appreciating such domestic detail as the pillow and tablecloth.

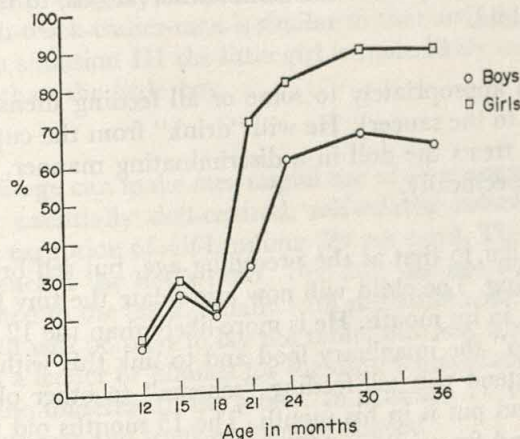


FIG. 4. Situation I—sex difference in combing or brushing doll's hair (item 9), showing persistently higher incidence in girls.

There were no obvious sex differences for most activities not related to the doll, such as placing the cup on the saucer, the chair to the table, the logs in the truck or trailer.

Boys showed a transient lead in some of the activities relating to the truck-trailer situation. The most marked and persistent difference in favour of the boys was, however, their interest in the mechanical aspects of the truck-trailer situation, lining them up and trying to join them in various ways (Fig. 5). Only boys were seen to "mend" wheels or to put "petrol" in the truck.

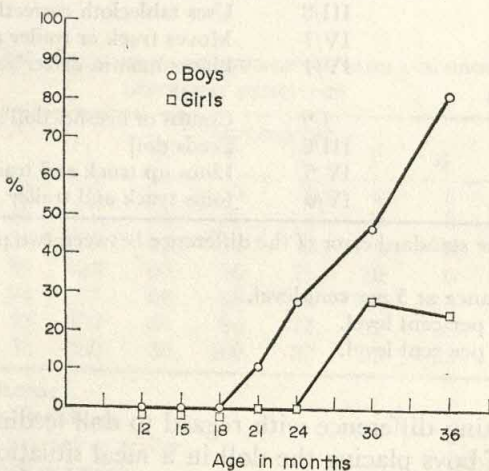


FIG. 5. Situation IV—sex difference in joining truck to trailer (item 6), showing persistently higher incidence in boys.

Stages of development—cross-sectional view

In this section an attempt is made to summarize behaviour found typical for each age level. The skeleton for these descriptive summaries will be provided by those items that occurred with at least 50 per cent frequency at a given age, but this will be supplemented by more incidental observations, to bring to life a hypothetical "average" child.*

12 months

The child reacts appropriately to some or all feeding utensils (e.g. relates the spoon to the cup or to the saucer). He will "drink" from the cup or "feed" himself with the spoon. He treats the doll in a discriminating manner, but the remaining objects are used unspecifically.

15 months

Behaviour is similar to that at the preceding age, but self-brushing or combing is added to self-feeding. The child will now also relate the tiny fork or knife to the plate or put the fork in his mouth. He is more likely than the 12 months old clearly to "stir" or "pick up" the imaginary food and to link this with the action of self-feeding. He may extend this self-feeding "schema" to other objects, e.g. dip the log into the truck and put it in his mouth. The 15 months old will push the little truck or trailer to and fro on the table.

*Standardised data is available and has been submitted to the N.F.E.R. with a view to publication.

18 months

This is the peak age for self-related activity. The child will not only feed and brush/comb himself, but he may also wipe his face with the toy blanket or tablecloth, or try to sit down on the toy chair. The doll is now handled with more discrimination (e.g. stood upright, made to jump, or cuddled, but it is not, as a rule being fed, combed etc.). There may be some combinational play with doll, blanket and bed, without, however, a clear indication of trying to put the doll to bed.

21 months

This appears to be a transitional stage, at which doll-related activities for the first time equal or slightly outweigh self-related behaviour. The child will now feed (45 per cent) and comb/brush the larger doll and display at least one kind of doll-related activity in situation III. In the bed-situation, the child will cover or wrap up the doll with the blanket or put the doll on the bed with the clear intention of putting it down to sleep, although these activities are not necessarily integrated and the pillow is only used as an additional blanket or as a mattress.

In the truck-trailer situation, the child will place the logs and the little man into one of the vehicles.

Sex differences. Girls of this age are more likely to display the above-mentioned doll-related activities than boys.

24 months

Doll-related behaviour is now dominant. The child will feed the doll or place it in a meal-situation in both situations I and III. He will seat the doll on the chair, but this will not yet, as a rule, be related to the table. When putting the doll to bed, the child will now include the essential elements (i.e. doll, bed, blanket) in an integrated manner, but the pillow is still being used unspecifically. More care may go into making of the bed than at the previous stage (e.g. the child may pat the blanket or tuck it in), and he may indicate that he has various other ideas connected with going-to-bed (e.g. may try to take the doll's shoes off or search for the missing mattress). Play with truck-trailer-man is similar to that at 21 months.

Sex differences. In situation III the little girl is more likely to seat the doll on the chair or to feed it than the little boy.

30 months

The child of this age can make meaningful use of all elements of the given situations. His play is essentially doll-centred, self-related behaviour having mostly faded out, with the exception of self-brushing (24 per cent). The pillow is now being carefully placed beneath the doll's head. The doll will not only be seated on the chair, but also pushed to the table, usually with plate and cutlery being put in front of it. The tablecloth will be used to lay the table, but may also be used in various other ways (e.g. as a feeder or blanket for the doll, a glasscloth to wipe the cutlery or as a carpet or lino underneath the table). In situation IV the little man will be placed in the driver's seat and truck and trailer aligned.

The child is now likely to search for absent objects which he needs for his play or he may even create these objects himself (e.g. fold a piece of cloth to make a

pillow case or make a bench for the little man with the help of the logs). The doll may not only be put to bed, but also "awakened" after its "sleep" and in situation III the child may act out a sequence of meal and bedtime, making table and tablecloth serve a dual purpose. More action than previously seems to be attributed to the doll itself, which may be made to "walk" to its bed, "hold" knife and fork, or the little man may "hold" a log or "mend" a wheel.

Sex differences. The little boy may not yet use pillow and tablecloth specifically, while the little girl may not line up truck and trailer.

36 months

As the 30 months old has practically reached the ceiling of the possibilities inherent in the material, not much progress is discernible along the lines of the present analysis. There is now a marked decline in overt versus implied feeding of the doll, that is the child is more likely to place the doll at the laid table than actually to feed it. In situation IV the child will now attempt—mostly successfully—to hook the trailer on to the truck. The tendency to activate the doll is even more marked than at 30 months (e.g. the doll may be made to "lay the table" or "wash the dishes", or the man may "load" and "unload" the truck instead of the child acting for him).

Sex differences. In situation III the little girl may still feed the doll overtly (44 per cent), while the little boy is unlikely to do so. She may also "put the doll to bed", laying it on the table and covering it with the tablecloth (44 per cent), which is significantly rarer with boys of this age (13 per cent). While the little boy is now very proficient in hooking truck and trailer together, the little girl is more likely to move them about separately.

DISCUSSION

The present study demonstrates that the meaningful handling and relating of miniature objects undergoes a rapid development during the age period under consideration. It was seen that already the "average" 1-yr old can identify a miniature replica with the object it stands for, but this applies only to a few objects, while at the end of the age range all objects presented were being used appropriately and the child was able to create, by their means, previously experienced or imagined situations. Progress in representational play depended largely on the development of the underlying concepts and within the three "domestic" situations (Situations I, II and III) a broad progression from the appropriate use of the feeding utensils, to comb or brush, blanket-bed, chair-table was ascertained. The reason for this progression needs elucidating by further research, which would investigate the influence of factors such as the size and scale of reduction of the objects, the number of toys presented at a time and their perceptual closeness to the objects portrayed. It would be important to investigate the influence of experience, which may vary with age, sex or other circumstances of the child's life. The younger child may be more familiar with a cot than a bed or may not have had the opportunity of sitting on a chair. The responses of mentally retarded children, who in clinical practice were observed in the same situations, and whose experience with beds, chairs, etc. was comparable to those of normal children of the same chronological age, suggested

that the outlined order is probably determined more by developmental than actual age, but this needs verification. Particular life experiences may add a personal realistic touch to a child's play (as in the instance where a little girl, who had a new baby sister, "fed" the doll with an imaginary "bottle" and even "brought up the wind" afterwards), but not necessarily affect the child's ability to see the doll as a person.

Within the framework of this study, the most conspicuous, objectively demonstrable developmental change was the transition from activities relating to the child's own body to activities directed towards the doll, which thus comes to symbolize a person. The inverse trend of these activities suggests that the one is the genetic precursor of the other. The fact that self-relating activities tended to follow in Gesell's (1938) terminology a "focal" trend, fits in with this interpretation, as Gesell sees such behaviours as progressive up to a certain stage, from when they are being superseded by more mature behaviour. There would thus be a stage (a) when the miniature object would not evoke any meaningful reaction at all, (b) when it would have acquired meaning, but only in relation to the child himself, (c) when it can be meaningfully related to the doll. The findings are in close agreement with Sheridan's (1969) who comments that, before applying objects to another person, teddy or doll, the child demonstrates their use on his own body, which she calls "definition by use". Sheridan sees application to another *person* as a developmental step between application to self or to a doll (teddy). The present observations do not suggest such a clear-cut in-between stage. Other-person-related behaviour had at no age a very high incidence and its trend was similar to self-related behaviour, which suggests that a child may become able to go directly over to doll-related behaviour without necessarily having gone through an intermediary stage. The ability to transfer actions, first practised on himself in a playful manner, on to another object or a doll, and therefore to ascribe to it actions analogous to the child's own, is indeed seen by Piaget (1967) as the decisive step from the "symbolic schema", still belonging to the "sensori-motor period", to symbolic play proper. The significance of this process of "decentration" for the development of symbolic thinking is also stressed by Werner (Langer, 1970), who speaks of "perspectivism" as the child's increasing ability to sympathize, empathize and adopt the perspectives of others, which links the development of symbolic thinking to that of self-awareness and awareness of others.

In the present sample of normal children the transition from self-centred to doll-centred behaviour occurred around 21 months and the latter was well established by 24 months, irrespective of the material used. During the transitional period some children went indeed through a sequence of actions corresponding to the developmental sequence. Thus a boy of 21 months placed the little chair on the floor and tried to sit down on it, before placing the doll on it. Another boy of the same age placed the tablecloth under his chin like a feeder and then did the same to the doll. Some children brought the spoon towards their mouth, but inhibited their action and "fed" the doll instead.

There seemed to be within the second broad period of doll-related behaviour, a progressive animation of the doll, culminating at a point when the doll became an agent in its own right rather than a recipient of the child's care. This became a

noticeable (though not universal) tendency around 30 months and may account for the decrease in actually "feeding" the doll towards the top of the age range. At this stage, children sometimes expressed identification with the doll (like the girl who placed the doll prone on its bed with the comment "I sleep like that") and projected their own dislikes on to it ("she doesn't want to go to bed", "she says she doesn't want her dinner"). This aspect needs more investigation because of its implication for the use of projective techniques with young children. "Age" and "sex" of the doll will presumably influence the child's handling of it and identification with it.

It would appear to be more than coincidental that the age at which play became doll-orientated (i.e. 21 months) is the same at which children normally start putting words together, this stage of decentration possibly being a precondition to the relating of concepts in spoken language.

SUMMARY

Two hundred and forty-four children at seven age levels between one and three years were observed in four standard situations, in which miniature replicas of everyday objects were presented for the child's free use. The objective was to delineate trends in the meaningful use of these materials. There was a rapid development from the appropriate use of a few objects only, to comprehension of all elements of the sets presented. Activities which centred on the child's own body, progressively gave way to doll-orientated activities, the transition taking place around 21 months, the age when children normally start putting words together. Descriptive cross-sections of typical behaviour at each age level were outlined, taking account of sex differences.

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PSYCHOLOGICAL PROBLEMS IN UGANDAN SCHOOL CHILDREN: A CONTROLLED EVALUATION

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INTRODUCTION

THERE has been a remarkable increase in psychiatric services in sub-Saharan Africa during the past decade with a concomitant rise of literature, well summarized by German (1972). Child psychiatry, on the other hand, has only very recently been introduced into Africa (Asuni, 1972) in the form of the opening of some child guidance clinics. These clinics have generally been patient orientated and have provided little epidemiological data pertaining to the incidence and types of particular psychiatric disorders in African children. Cederblad (1968), in a pioneering investigation, surveyed three complete Sudanese villages near Khartoum and found an average psychiatric morbidity of 8 per cent amongst children aged 3-15 yr. A further 20 per cent of all children exhibited "moderate symptoms" which were defined as symptoms which did not cause any acute problems and could generally be coped with by the families. Her survey (Cederblad, 1968) presents a number of problems, however, which may significantly affect the reported results. All families in the villages were interviewed by medical students who had received only minimal training in taking a psychiatric history and had not volunteered to participate in the programme. Furthermore, symptoms such as nail biting and enuresis were seen as evidence of psychiatric disturbance, a view few present day investigators would share (Mensch *et al.*, 1959; Tapia *et al.*, 1960; Rutter, 1965).

Giel (1970) working in Ethiopia has given some anecdotal material about the problems encountered in visiting a local Remand Home but was unable to confirm his impression in a methodologically more rigorous study. In another investigation Giel and Vanluijk (1969) and Giel, Bishaw and Vanluijk (1969) state, however, that children were rarely brought to a rural health centre for psychiatric complaints while a surprisingly high number (19.5 per cent) of adult patients presented with a primary psychiatric condition. Other recent studies dealing with psychiatric problems in African children present various types of case material but no epidemiological data (Egdell and Stanfield, 1972; Goodall, 1972).

The present investigation then was designed to provide some answers to questions regarding the incidence and types of psychological disturbances as found in Ugandan primary school children. These data were required for the development of integrated child psychiatric services in that country, a task given to the author upon his arrival in 1971. The study furthermore tried to establish how non-medical personnel could be utilized in the recognition and possible treatment of psychological disorders in children.

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Uganda, an independent country since 1962, is situated in East Africa, straddling the equator. The country is about the size of the U.K. and its ten million inhabitants are primarily engaged in farming. Coffee, tea and cotton provide the bulk of the individual's cash income.

The country is populated by various tribal groups who speak different languages and have attained various levels of education and economic sophistication. While the northern parts have distinct dry and rainy seasons, the south gets evenly spaced rain, making it one of the most fertile regions in the whole of Africa.

Educational standards vary regionally. Primary school attendance is dependent upon income because of school fees, and on the availability of schools. Opportunities thus differ, giving a primary school attendance rate of approx. 50 per cent in the south and less than 10 per cent in the north. Secondary education is carried out in various governmental and private schools by teachers of unequal training. There is one university, founded 50 years ago, which has all the faculties usually found at large universities. Its present enrolment is about 3,000 students with a faculty of some 300.

METHOD

Three schools in economically distinct areas in Buganda, the southern and most developed province in Uganda, were used in the study. This choice made it possible to work in one language only, a language the author was familiar with, and assured a comparatively homogeneous cultural background of the total sample. It also allowed a comparison of symptoms between areas varying in exposure to medical care and economic sophistication.

School 1

This school is situated in a remote area some 90 miles north of Kampala, the capital. Classrooms are made of mud, there are only 20 pencils amongst all children in grades 1-4, and 1 book available per classroom. Grade 1 meets under a tree as its classroom; a straw thatched hut had disintegrated during the past year. Medical facilities in the area are poor. There is a district hospital about 60 miles away, but no regular transport. A dispensary some 8 miles away provides only the most rudimentary service. No vaccinations can be performed as a refrigerator is not available and even minor surgery cannot be attempted because of the lack of equipment. The population subsists on small scale agriculture and fishing.

School 2

This school is situated 35 miles north of Kampala in an abundantly fertile area. The school buildings are semi-permanent structures, there is ample recreational space and teachers as well as students are provided with a limited number of books and teaching materials. Some 500 yd from the school is a maternal and child health centre, staffed by two midwives, a health visitor and an agricultural instructor. This allows mothers, whose children suffer from deficiency diseases, to be taught proper feeding and cooking techniques and permits the staff to demonstrate food growing methods on their special farm. A doctor from Kampala visits the centre

4 hr per week. Most people in the area farm, but some have established regular contacts with hotels or other institutions in Kampala and sell their produce regularly.

School 3

This school is situated in Kampala proper and caters to lower middle class African children. It has the best equipment of all three schools, instructs in English from Grade 1 onwards, and at times it even has teachers trained in specialities such as science and music. Many of the children attending the school live in a nearby housing development. Their parents go out to work and do not farm. They thus represent the modern African man who has migrated to the city and given up a number of his traditions. It follows that the school has children and teachers from various tribes within and outside of Uganda.

Procedure

Initial assessment. Following various visits to each school and the area in general for familiarization, the author asked the teachers of all three schools teaching grades 2-7 to fill in a symptom questionnaire, devised by Rutter (1967), on each child in their respective classes. This questionnaire had already been translated into the local language and the abnormal connotations of individual symptoms were established. All 577 children attending the three schools six upper grades were rated by their teachers. Their ages ranged from 7 to 15 yr at the time of initial assessment.

All children who had a score higher than 9 on the Rutter scale were defined as problem children and the three or four worst children per class were interviewed and physically examined by the author, following a structured protocol (available from author). The protocol included questions pertaining to complaints as they were seen by the child, his previous academic standing, peer and family interaction, his relations toward authority and his general behaviour. The child was also asked to give an account of his family situation, past life, his daily routine at home and at school. He was further asked to tell the examiner his happiest as well as saddest memory, name three magic wishes and tell him what he wanted to be when he was grown up. In an attempt to assess their nutritional status, the children were also asked which of 13 particular foods they had eaten during the day preceding the interview. A control group was obtained by selecting two children from each classroom who had been given a questionnaire score of 0-3 by their class teacher. These children were subjected to the same investigations as the problem children.

Following the school interview each problem and control child's family was visited, and the parents interviewed for some 60-120 min. Here questions ranged from educational level of the parents and siblings to family numbers and annual income. There were data on the birth and medical history of the child as well as his earlier social development. An attempt was made to elicit concrete data on child rearing practices such as types of punishment and emotional content of interactions. Finally all parents were given the Peterson-Quay Rating Scale (1967) which required them to state whether any of 55 symptoms was absent or present in their child to a mild or severe degree. This assessment was followed by a dynamic formu-

lation of the problem as seen by the author and an estimate of the level of insight of both parents and child, terminating in the drawing up of a definite treatment plan.

Treatment

Following the initial evaluation the author together with the local health assistant regularly talked to all teachers of grades 2, 4 and 6 about their problem children and visited these childrens' families at least two more times, in an attempt to counsel family members or modify environmental difficulties. The health assistant who functioned as an interpreter for the more difficult conversations and accompanied the author during all his visits, saw the problem families on an additional two or three occasions. No such visits were made to parents of grade 3, 5 and 7 problem children and no discussions were held with their teachers. Control children were also not visited.

Treatment visits to families consisted not only of verbal advice but were guided by the practical necessities of each family. These included medical care for any family member when this was necessary, the provision of seeds to plant better food, medication for restlessness and in some cases transport to the distant hospital.

Teachers were also helped in practical matters. The author got paper and pencils for all pupils in school 1, was able to supply some books to both teachers and children and acquainted some teachers with modern educational literature. Medical care was also provided to the teachers' families. The counselling took place in small meetings with all three teachers whose children were treated being present. Each problem child's history was reviewed and a detailed treatment plan worked out, covering the mode of instruction, disciplining and rewarding of specific behaviours. Periodic reviews of each child's progress allowed for necessary adjustments and achieved good integration with the family's treatment.

Follow-up

Ten to twelve months after the initial assessment the teachers of treated, untreated and control children were asked to fill in the questionnaire (Rutter, 1967), again. All children and families were again interviewed, asked identical questions and any changes recorded. As most children had proceeded to the next grade, their present teachers were theoretically unaware whether the individual problem child had been in the treated or untreated group.

RESULTS

The three schools with a total student population of 577 had 108 children who received scores above 9 on the Rutter scale (see Table 1). The percentage of problem children was highest in the city school (school 3) and lowest in the medically well cared for country school (school 2).

For practical reasons only the 48 most difficult children could be examined in detail and will comprise the sample in the subsequent analysis. These will be compared with a total of 36 control children. Table 2 shows the very significant difference between the problem and control children in the Rutter scale on initial evaluation.

TABLE 1. INCIDENCE OF PSYCHOLOGICAL DISORDERS AS MEASURED BY RUTTER'S TEACHERS' QUESTIONNAIRE

Total No. of children	577
Total No. score > 9	105 = 18%
Problem children examined	48
School 1: Total No. of children	166
Total No. score > 9	33 = 19%
School 2: Total No. of children	200
Total No. score > 9	21 = 10.5%
School 3: Total No. of children	211
Total No. score > 9	51 = 24%

Table 3 summarizes the age and sex of all children who were investigated. It shows control and problem children to be well matched on both variables.

TABLE 2. INITIAL BEHAVIOUR QUESTIONNAIRE SCORES

	Control	Problem
<i>N</i>	36	48
Mean	1.56	15.38
<i>s.d.</i>	1.99	6.07
$t = 13.12$		$d.f. = 82$
$p < 0.001$		

TABLE 3. AGE AND SEX OF CHILDREN

	Age	Range	Male	Female
Control <i>N</i> = 36	11.2 yr	7-15	25	11
Problem <i>N</i> = 48	11.6 yr	7-15	31	17

Table 4 shows the socio-economic distribution of the sample as suggested by Hollingshead (1958). The classes were modified in the following way. Class I: professionals with university education, Class II: senior government officials and owners of large businesses who had a secondary school education up to standard 4. Class III: junior civil servants, primary school teachers, policemen, clerks. Class IV: craftsmen, farmers owning more than 3 acres, mechanics. Class V: small plot farmers, unskilled labourers. On this basis there was no significant difference in social class between the groups.

TABLE 4. SOCIO-ECONOMIC CLASS OF FAMILIES

	I + II	III	IV + V
Controls <i>N</i> = 36	4	6	26
Problems <i>N</i> = 47	2	11	34

TABLE 5. TYPE OF FAMILY

	Nuclear	Extended	Multi-nuclear	One parent only
Controls <i>N</i> = 35	16	5	11	3
Problems <i>N</i> = 47	13	12	17	5
$\chi^2 = 8.42$ <i>d.f.</i> = 3				
$p < 0.05$				

Table 5 indicates the types of families the children come from. It is evident from the table that a significantly higher percentage of problem children come from families where more than two adults live in the house, either as co-wives or relatives. This confirms a popular feeling among many Ugandans that polygamous households are more stressful for children and contradicts the notion frequently expressed in the literature that the plurality of personal exchanges within the extended family gives the child a particular security (Collomb and Valantin, 1970).

Looking at school functioning again finds the problem children to vary from their control peers. The problem children have significantly more often repeated one or more grades (see Table 6) and are still doing poorly academically (see Table 7).

TABLE 6. SCHOOL GRADES REPEATED

	None	1	More than 1
Controls <i>N</i> = 36	25	10	1
Problems <i>N</i> = 47	22	18	7
$\chi^2 = 8.75$ <i>d.f.</i> = 2			
$p < 0.02$			

TABLE 7. CLASS PLACE ASSESSMENT IN QUARTILES

	1	2	3	4
Controls <i>N</i> = 35	17	9	5	4
Problems <i>N</i> = 45	6	8	11	20
$\chi^2 = 59.76$ <i>d.f.</i> = 3				
$p < 0.001$				

This tends to support the notion that these children are primarily maladjusted, as an intellectually slow child tends to benefit from repeating a grade. An emotionally disturbed youngster, on the other hand, tends to create a non-learning environment wherever he goes and hence is frequently not helped by repeating a year. Another possibility could be a lack of motivation to learn, caused by a variety of social or cognitive reasons. Yet the majority of children seemed eager to learn and appeared to have the basic intellectual equipment to do so.

Other variables thought to possibly influence academic success were the distance between home and school and the availability of breakfast, or at least sweet tea, prior to leaving home in the morning. Results indicate that both groups of children walked an average of 2.3 and 2.8 miles to school and back every day with the control children making the longer trip. Nineteen (40 per cent) of the problem children, however, received no nourishment prior to coming to school, while only 10 (27 per cent) control children, had no food in the morning ($\chi^2 = 3.98$, $d.f. = 2$, $p < 0.05$).

Turning to the families of these children, various group differences stand out. The majority of homes of the problem group were poorly maintained and showed other signs of disorganization, such as dirty children, weed infested fields, neglected small animals and an abundance of rubbish.

These physical differences were substantiated by a variety of other findings. In 40 per cent of all cases, the original families of the problem children had broken up, due to divorce or desertion, while this was so in only 10 per cent of the control children. This caused significantly more problem children to leave home and live with relatives (see Table 8).

TABLE 8. MOVEMENTS FROM HOME

	None	1 or more
Controls		
$N = 36$	32	4
Problems		
$N = 48$	29	19
$\chi^2 = 11.33$ $d.f. = 1$		
$p < 0.001$		

Moves of the children for good reasons (e.g. grandmother asked for the child to come and stay with her; an aunt lived closer to the school, hence the child stayed there during the school term) did not differentiate between the two groups. This finding again contradicts the frequently expressed opinion that moving within the extended family is the normal phenomenon within African cultures and makes it obvious that some types of moves are indeed sanctioned by the culture and hence have no measurable impact on the child, while others appear to correlate with later psychological difficulties.

Child caring practices were not examined as the author felt ill-equipped to do so. However, some questions given to the parents gave some possible insight into basic mechanisms of the parent-child relationship. Virtually no parent felt that he had over-indulged the child in question and a nearly equal number of parents (10 of control and 15 of problem children) felt that they were not always consistent with their children indicating that self-assessed inconsistency in disciplining and over-indulgence is not an issue correlating with poor behaviour in this sample. The frequency of physical punishment gave different results. Table 9 clearly demonstrates that the problem children were beaten more frequently than their control peers (severe = every day; moderate = at least once a week; mild = 1-3 times per month). Whether this practice is the end-result of the child's poor behaviour or a

basic parental attitude is not evident from the data, although the author felt that beating as a tool in child rearing had been part of the repertoire of the problem child's family for a long time. This impression is supported by the almost neglectful attitude of some parents. They never came to school meetings, did not usually know their children's marks, rarely enquired about homework and often complained about the limited household help they got from the children. Yet the great majority of parents when initially asked whether they felt their particular child in question was a problem in his general behaviour, gave an answer which corresponded to the judgment of the teachers (see Table 10). The parental Peterson Quay Scale (1967) ratings of the problem and control children confirmed this global assessment with mean scores of 18.35 vs 5.51 ($t = 5.58$, $p < 0.001$) given to the problem and control children respectively.

TABLE 9. PHYSICAL PUNISHMENT

	None	Mild	Moderate	Severe
Controls $N = 36$	32	4	0	0
Problems $N = 48$	28	10	9	1
$\chi^2 = 14.23$ $d.f. = 3$				
$p < 0.01$				

TABLE 10. AGREEMENT ON CHILDREN'S PSYCHOLOGICAL STATE BETWEEN TEACHERS AND PARENTS

	Problem children ($N = 48$) (%)	Control children ($N = 36$) (%)
School 1	50	93
School 2	80	75
School 3	82	93

Many of the conflicts besetting individual families were first brought to our attention by the children and we never ceased to be amazed by the concern and thoughtfulness of their wishes and observations. These data will be published in a later report, but one particular phenomenon should be mentioned. Problem children in this population significantly more often wished for a professional career which was quite unrealistic (e.g. a child of 11 in grade 3 with poor marks and repeated failures who could not speak English wanted to be an airline pilot) or else desired to be powerful (e.g. join the army and kill everyone who is against them). In both groups, however, there were only very few children who wanted to remain small peasants or unskilled labourers, indicating a general striving towards betterment through education.

DISCUSSION

The present study must be discussed both from a methodological and clinical point of view. The sample size was small and thus may only reflect the problem in

the particular areas studied and not allow generalization of the whole of Buganda. Yet unpublished data by Orley (1975) who investigated two complete villages and assessed psychologically every adult, suggest that in his groups about 25 per cent of the total village population suffered from significant psychiatric symptomatology impairing their daily functioning. Assael *et al.* (1972) in a study of pregnant rural Bugandan women also found 24 per cent to have significant psychiatric symptomatology. Both figures would be comparable to the numbers obtained in this study. An attempt to validate our data further by finding a control group of families who did not send any child to school proved futile as there simply were no families in either of the districts who had not at least one of their children in school for some time.

The next problem is one of the validity of the author's psychiatric assessments. Studies in adults have demonstrated that while personal symptomatology may vary, the basic types of psychopathology in Africa are very much the same as those found in Western societies (German, 1972). Nurcombe and Cawte (1967) studying behaviour disorders among children of Australian aborigines, were able to classify all but two cases according to the GAP classification (1966), indicating that areas of concern to parents were similar in various cultures.

The reliability of our assessment methods were tested in a limited way by having four problem and two control children and their families interviewed by two independent observers. There was a 94 per cent agreement on the 92 questions which were given to both parents and child which dealt primarily with psychological functioning of child and family. The validity of the Peterson Quay Scale (1967) was inadvertently tested by selecting two families who had each a control as well as a problem child in the study. This was possible as children's names in Uganda do not generally correspond to the names of their siblings or parents. Both families scored their children very differently and thus confirmed the discriminatory function of the scale when completed by parents.

The results show a number of outstanding points. Children living in different areas in Buganda varied significantly in the manifestation of psychological problems. City children showed the highest incidence of abnormality while those who lived in the country but who benefited from essential medical services, the least. The problem children more commonly lived in extended or multi-nuclear families. This in the author's experience is explained by the frequently inconsistent disciplining such multiple mothered children receive. Many of the youngsters examined knew very well, for example, that mother *A* would allow them to get away with not carrying water, and mother *B* in turn would not mind if they had beer to drink or did not go to school on time. Often stepmothers openly resented the child under study and would mistreat him. The real mother then did not dare to complain to the husband about the co-wife as he might not believe her but assume that she wanted him to discharge the other wife.

The correlation between poor school functioning and poor behaviour as demonstrated here has been well established in Western societies (Rutter *et al.*, 1970, pp. 232-239). The present analysis, however, does not allow definition of all the variables possibly contributing to this relationship such as poor diet, low intelligence, parental disinterest, or poor hygiene. As the children were also assessed on

cognitive tests (to be published) some classification of these issues will hopefully be arrived at later.

The more frequent breakdowns of families, moves and varying patterns of punishment all seem to be related to the inferior parental care the problem children received. This is confirmed by an analysis of the children's wishes and memories (to be published). These wishes, among other things, show that problem children significantly more often look for good relationships rather than possessions, whereas the control children do not perceive a good relationship as something one wishes for, but has. The unrealistic expectations of a future professional career of most problem children may also represent an attempt to make up in the future for what they did not have at present, namely money and power. It is interesting to observe in this context that even the wish of the problem groups second best future job was mainly unrealistic whereas the control children chose more down to earth occupations. We are aware, however, that the judgment of what is realistic and unrealistic in contemporary Africa is fraught with dangers as one could equally claim that the wish to be a subsistence peasant is unrealistic for a child endowed with superior intelligence. The concordance between the teachers and parents on the presence or absence of difficulties in their children is most remarkable and much higher than those quoted by Rutter *et al.* (1970, pp. 120-138). The reason may be that this study analyses extreme groups—the worst and best children—and that agreement would have been lower had we included control children with questionnaire scores of 5-8. In addition one wonders if the mode of presentation—the questions were read to the parents and not sent to them by mail, may have influenced their response, making a denial of symptoms more difficult. The questionnaire data of both teachers and parents are presently analysed as to variations in diagnosis between boys and girls, the concordance of clinical psychiatric diagnosis between children and families and the factors isolated by the two rating scales. The records of those children who scored in the abnormal range but were not investigated in detail will also be examined and comparisons between teacher ratings and academic performance made. There will also be a detailed analysis of the treatment outcome of all the groups under discussion.

In summary the study indicates clearly that psychological difficulties are common in children living in the Southern part of Uganda and that they are associated with fairly easily identifiable factors in the environment. The study furthermore demonstrates that it is possible to get apparently reliable estimates of these disturbances from primary school teachers and parents with methods developed primarily for Western societies.

SUMMARY

This study examines the incidence of psychiatric symptoms in primary school children in three district areas in the southern part of Uganda, using a symptom questionnaire initially developed for British children.

It furthermore compares the patient group with a control population from the same classrooms on various background variables. The results indicate the incidence of disturbances to be significantly related to the place of residence, with the urban

children showing the highest rate of behavioural symptomatology. Children from multi-nuclear homes who have changed living places frequently are more often seen as disturbed. Such children also do worse academically and have a much more unrealistic concept of their futures. There is a high correlation between the parent's and teacher's perception of the individual child's problems.

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THE EFFECT OF EARLY INSTITUTIONAL REARING ON THE BEHAVIOUR PROBLEMS AND AFFECTIONAL RELATIONSHIPS OF FOUR-YEAR-OLD CHILDREN

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INTRODUCTION

It is known to every student of child development that serious personality defects are said to follow early institutional rearing. The evidence on which this assertion is based is now very out-dated and in need of review. Most English residential nurseries for young children have enormously improved in response to criticisms and bear little resemblance to the grim institutions described by earlier writers. In the nurseries studied by the authors and colleagues the children lived in small mixed age groups, the staff-child ratio was high, the provision of books and toys generous and considerable efforts were made to broaden the children's experience. By the age of three the cognitive development of these children was at least average (Tizard *et al.*, 1972). However, those aspects of the institutional environment which Bowlby (1951) considered most inimical to mental health remained unchanged; large numbers of different staff cared for the children and close personal relationships were discouraged. There is thus a need to assess (a) whether, despite the other improvements, serious personality disturbance results from this atypical rearing; (b) whether institutional rearing in the earliest years leaves persisting effects on the development of children who subsequently leave the institutions.

Suitable children to study are not easy to find, because of the current reluctance to place infants in residential nurseries and the tendency to discharge them as soon as possible, even if only for short periods. Hence the great majority of children in institutions are admitted after the first year of life, and/or have had several admissions or re-admissions. The undoubtedly high rate of psychiatric disturbance in older institutional children (Yule and Raynes, 1972; Wolkind, 1971) can therefore rarely be attributed to early institutional rearing patterns.

This study concerns a group of 26 children aged $4\frac{1}{2}$ yr who had been continuously reared since early infancy in institutions which were in many respects of high quality. Their behaviour difficulties and affectional bonds with adults were contrasted with those of a group of London working-class children living at home. In order to assess how far the effects of early institutional care are reversible comparisons were also made with 39 children either adopted or restored to their natural mothers after spending their first 2-4 yr in a residential nursery. The cognitive assessment of the children is reported elsewhere (Tizard and Rees, 1974). The mean Full-scale WIPPSI I.Q. (Wechsler, 1967) of all groups was at least 100.

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SELECTION OF GROUPS FOR STUDY

The files of three voluntary societies were searched for children approaching the age of $4\frac{1}{2}$ yr who fulfilled the following criteria: they had all been healthy full-term babies, they had been admitted to a residential nursery before the age of 4 months, they had remained there without interruption until at least the age of 2 yr, and were either still in institutional care or had been adopted or restored to their mothers between the ages of 2 and 4 yr, i.e. at least 6 months previously. Sixty-five children were found, 24 white boys, 21 non-white boys, 13 white girls and 7 non-white girls. Twenty-six children were in institutions, 24 had been adopted and 15 had been restored to their mothers. The mean age of leaving the institutions was 3.11-yr, *s.d.* 0.69, for the adopted children, and 3.50-yr, *s.d.* 0.58, for the restored children ($t = 1.88$, *N.S.*).

Some of these children had been previously assessed whilst still in institutional care at the age of 2 yr (Tizard and Joseph, 1970; Tizard and Tizard, 1971). All but 2 of the children were illegitimate and all had been admitted to nurseries as infants either because their mothers hoped to care for them later, or because they wished for adoption. However, none of the children had initially been considered suitable for adoptive placement, usually because of a family history of epilepsy or psychiatric illness, or because one or both parents were non-white. Less frequent reasons were the mental retardation of a parent, or the poor health or slow development of the infant. Usually more than one reason was given. Between the ages of 2 and 4 yr adoptive homes had been found for 24 of these children, and 15 had been restored to their mothers. In 7 cases the child's mother had reclaimed him after marriage, usually not to the putative father. Eight children had been reclaimed by single mothers in poor material circumstances; in 4 cases the mother had 4-6 other children to support.

Of the 26 children who remained in institutions, 17 were there because the mother or putative father still spoke of reclaiming the child. In 2 further cases adoption had not been arranged because the natural mother could not be traced; of the remaining 7, 4 were children with 2 West Indian or African parents for whom adoptive parents could not be found, and 3 were considered unsuitable for adoption, in one case because of the subnormal intelligence of the mother, in the second because of the slow development of the child, and in the third because of a possible heart defect.

The child's placement at $4\frac{1}{2}$ yr therefore depended mainly on his mother's wishes and his racial origin. None of the children with two non-white parents had been adopted, and only one had been restored (Table 1).

Characteristics of parents. The adoptive parents differed from the three groups of natural parents in age, colour and social class. The mean ages of the four groups of mothers were; adoptive mothers, 36.7 yr, natural mothers of adopted children, 26.3 yr, mothers of restored children, 27.0 yr, mothers of institutional children, 27.7 yr, ($F = 23.92$, $p < 0.001$). All the adoptive parents were white. The social class distribution of the adoptive fathers differed from that of the other groups: a larger proportion were professional and business men (Social classes I and II) and none were semi-skilled or unskilled workers ($\chi^2 = 9.96$, *d.f.* 4, $p < 0.05$). Most would

TABLE 1. SEX AND RACE OF CHILDREN IN STUDY

Sex and race	Adopted	Restored	Institutional	London contrast
White boys	11	6	7	15
White girls	6	3	4	15
*Mixed race boys	5	4	5	0
*Mixed race girls	2	1	2	0
†Black boys	0	1	6	0
†Black girls	0	0	2	0
	24	15	26	30

*One white parent, one West Indian, African or Indian parent.

†Both parents West Indian and/or African.

not have been accepted as adoptive parents for infants, because of their age, and/or because they already had children of their own.

Selection of contrast group. These 30 children had been previously assessed as a contrast group at the age of 24 months (Tizard and Joseph, 1970). A list of healthy children aged 24 months who had been full-term babies was obtained from the files of two London local health authorities, and those parents who could be traced and who fulfilled the following criteria were asked to participate; both parents white, father working-class, i.e. Social class 3-5, mother not in full-time employment, and no 3- or 4-yr-old in the home, because of the difficulty this made in assessing the 2-yr-old. A number of families could not be contacted, and three refusals were met. No service was offered. However, all those who took part in the first study agreed to the assessment at 4½ years.

Size of families. The mean number of children per family was small in the non-institutional groups (adopted children, 1.96, *s.d.* 1.0; restored children, 2.40, *s.d.* 1.8; London working-class group, 2.33, *s.d.* 0.71) and the differences were not significant. Four of the restored children, but no children in any other family group were living in families of five or more children. All the institutional children were living in groups of 5 or more children.

Sex and ordinal position of child. The adopted children were most often the youngest child of the adoptive family, the restored children were most often the only child, the London working-class children were most often the eldest child, whilst the institutional children were most often neither oldest nor youngest in the institutional group ($\chi^2=53.6$, *d.f.* 9, $p < 0.001$).

There were equal numbers of girls and boys in the London group, but there were approximately twice as many boys as girls in the institutional and ex-institutional groups. This is because no more girls who fulfilled the criteria could be found; fewer girls are admitted to institutions as infants, and those admitted tend to be adopted or fostered earlier.

THE INSTITUTIONAL ENVIRONMENT

The residential environment has been described more fully elsewhere (Tizard and Tizard, 1971). The majority of nurseries contained 15-25 children, organized into a baby unit and two or three mixed age groups of 6 children, ranging in age from 12 months to the upper age limit of the nursery, which varied from 4½ to 7 yr. Each group had its own suite of rooms well supplied with books and toys, and its

own nurse and assistant nurse. Two or more staff were on duty with the group each day. Most of the nurseries made considerable efforts to broaden the children's experiences by organizing shopping expeditions, excursions, car and bus rides, and occasional weekend visits to the homes of staff members. The nurseries were rarely short of staff and indeed had a long waiting list of applicants. Ten of the children were currently living in larger groups of 7-20 children in all-age children's homes. Two of the children had lived in these homes since infancy, but the remaining 8 had been transferred from nurseries 4-16 months previously. The staff ratio in the all-age homes was lower than in the nurseries but in no instance fell below one child-care staff to 3 children. Although 17 parents hoped to reclaim their children, only 3 visited once a month or more often. Eleven visited very irregularly and infrequently, whilst 12 children had had no family contacts for at least 2 yr.

Although staffing was generous, many different nurses handled the children. The average number of staff who had worked for at least a week with each child in the past 2 yr was 25.8, range 4-45. The major turnover was in untrained assistants and student nurses, but in all except two institutions the trained nurse in charge of the child's group had changed at least once in the past 2 yr.

ASSESSMENT PROCEDURE

The children were visited by one investigator (J.R.) within a month either way of attaining the age of $4\frac{1}{2}$. The institutional children were in 19 different institutions, and the restored and adopted children spent several hours, including a meal-time, in the home or institution, occasionally staying overnight. Whenever possible the child was seen alone with its mother or most familiar nurse, but in a few private homes other sibs were present. The interviews were tape-recorded. During the course of the interview an intelligence test was given, ratings were made of the child's and the parent's observed behaviour, and evidence about the child's present behaviour and history was collected from mother or nurse.

1. *Ratings of child's observed behaviour*

A rating scale to assess friendliness to strangers was adapted from one devised by Rheingold for babies (Rheingold and Bayley, 1959). After an initial short conversation with the mother or nurse in the child's presence the investigator made two standardized approaches to the child, first smiling, and greeting him by name, and then inviting him to come and look at some toys. The child's responses to each approach were rated on a seven point scale, ranging from 1—cries and/or runs away, to 7—responds and talks spontaneously. The rank order correlation between the scores of the two investigators when assessing a pilot sample of 20 children with the combined scale was 0.91 on one occasion, and 0.94 on another occasion with a different 20 children. Further ratings of the child's behaviour were made after psychological testing. The child's behaviour during the test was rated on four four-point scales.

(1.1) *Co-operativeness*. Which depended on the number of times the child refused or resisted a test item. (1.2) *Restlessness*. Which depended on the frequency with which the child got out of his chair. (1.3) *Concentration*. Which depended on the frequency with which the child had to be checked from various distractions. (1.4)

Talkativeness. Which depended on the frequency of spontaneous comments. At the end of the whole interview the investigator rated the child's *Friendliness* to her during the second half of the time spent with her on a seven point scale ranging from 1—avoids, does not respond to requests, to 7—child's approaches have to be checked to enable test and/or interview to be completed.

2. *Evidence from the parents*

(i) *Behaviour problems.* After the child had left the room the mother, or the nurse most familiar with the child was interviewed, using a questionnaire designed by Richman and Graham (1971). Only the questions dealing with behavioural problems were asked. These covered eating and sleeping problems, sphincter control, hyperactivity, inability to concentrate, quarrelling and jealousy tantrums, worries, fears, dependence, thumbsucking and other comfort and nervous habits. Additional questions were asked on attention seeking and disobedience and anxieties arising from institutional care. The mother was asked to describe the child's behaviour in each area, and questioned further where necessary. On the basis of her replies the investigator rated each answer on a 3 point scale. For example, the mother was asked what foods the child would not eat, and on the basis of her reply the investigator rated the child according to pre-defined criteria, as having few or none, a moderate number, or many food fads. The senior author subsequently re-assessed these ratings, as well as the other ratings based on parental evidence, from the tape-recordings. Disagreements, which were resolved by discussion, occurred on ca. 1 per cent of ratings. "Blind" ratings of the tape recorded evidence was not possible because incidental remarks or the mother's accent usually made it clear to which group the child belonged.

(ii) *Affectional bonds.* The mother or nurse was then given an Attachment questionnaire, developed from one used in the assessment of 2-yr-olds (Tizard and Tizard, 1971). The questions were designed to elicit whether the child showed a preference for any particular adult in certain situations, e.g. at bed-time, or when hurt, and whether he tended to follow any particular adult and show affection to any particular adult; or whether any familiar adult or even a friendly stranger would be acceptable in these situations. The nurses and the adoptive mothers were also directly asked whether they felt the children were deeply attached to them, and the nurses were asked to describe the child's reactions to staff changes.

(iii) *Assessment of the child's environment: Self-help, routines, venturing from home.* As a measure of the adult pressures on the child questions were asked about the regularity of bedtime, and the extent to which the child was expected to dress and wash himself and tidy up. Questions were also asked about the extent to which the child was allowed outside the house on his own. These questions were taken from Newson and Newson (1968).

(iv) *Parental assessment of change.* The mothers of the adopted and restored children were asked whether and in what way they thought their children had changed since leaving the institution.

3. *Ratings of emotional climate*

At the end of the interview the investigator noted whether or not the mother or nurse had shown certain specified behaviours towards the child. Five of these

behaviours were expressions of positive feeling for the child, e.g. "mother or nurse spontaneously praises child", "mother or nurse cuddles or kisses child", six were expressions of negative feeling, e.g. "mother or nurse expresses annoyance with, or hostility to child", "mother or nurse slaps or otherwise physically punishes child", and three were expressions of anxiety, e.g. "mother or nurse expresses anxiety about her handling of the child", "mother or nurse corrects child's test performance". These questions were taken from Caldwell's Inventory of Home Stimulation (1966).

RESULTS

1. *Ratings of child's observed behaviour*

Both institutional and London working-class children tended to be shy and cautious at the initial encounter. The adopted children and restored children were significantly more friendly: during psychological testing they were more co-operative and talkative. In these standardized situations both the institutional and the London working-class children tended to be shy, silent, unco-operative and readily distracted. Attention-seeking behaviour during the rest of the interview was unusual except from the restored children (Table 2).

TABLE 2. INITIAL AND FINAL RESPONSE AND BEHAVIOUR DURING TEST SITUATION

	Adopted <i>N</i> = 24	Restored <i>N</i> = 15	Institutional <i>N</i> = 26	London children <i>N</i> = 30	χ^2 3 d.f.	<i>p</i>
Response to a stranger						
% smiled on being greeted	54	47	23	23	8.2	< 0.05
% approached when asked smiling and/or talking	67	53	35	27	10.1	< 0.02
% turned or ran away	0	0	15	10	5.8	<i>N.S.</i>
Behaviour during testing						
% refusing no test items	50	33	27	15	7.4	<i>N.S.</i>
% talks spontaneously throughout	38	47	13	16	8.9	< 0.05
% checked from distracting activities	33	87	73	72	15.1	< 0.01
% left the table several times	17	27	40	20	4.2	<i>N.S.</i>
Approaches during 2nd half of session						
% seek affection and/or attention seeking	13	40	19	7	8.4	< 0.05
Mean total problem score (habits excluded)	5.3	7.3	8.2	7.9	$F=3.5$	< 0.05

2.i *Behaviour problems.* Each question was scored 0 (no problem), 1 (a mild problem) and 2 (a marked problem). The points on the scale were defined in advance in detail and the ratings were made by the investigator on the basis of the information given by mother or nurse for each question. Of the 15 questions referring to behaviour which might be considered to represent a problem, seven showed no significant difference in prevalence between the groups of children. Day-time sphincter control had been achieved by almost all the children, and the proportion who wet their beds at night and had fears and worries was about the same in all the groups. Few children in any group woke during the night and most were considered

at least mildly attention seeking by their parents or nurses. Marked attention seeking, said to characterize institutional children, was described in 42 per cent institutional children, but also in 29 per cent of adopted children, 39 per cent of restored children and 20 per cent of London children. Of the eight problems whose incidence differed significantly in the four groups three were most frequent in the London working-class children; mealtime problems, whether due to poor appetite or food fads, ($\chi^2 = 10.7$, 3 d.f. $p < 0.02$), over-activity, ($\chi^2 = 8.3$, 3 d.f. $p < 0.05$) and disobedience, ($\chi^2 = 10.7$, d.f. 3, $p < 0.02$), four were most frequent in the institutional children, poor concentration, ($\chi^2 = 8.7$, 3 d.f. $p < 0.05$), problems with peers, ($\chi^2 = 9.5$, 3 d.f. $p < 0.02$), temper tantrums ($\chi^2 = 10.5$, 3 d.f. $p < 0.02$) and clinging ($\chi^2 = 8.2$, 3 d.f. $p < 0.05$). Both institutional and London working-class children had more problems settling at bedtime than the other groups.

Each child was given a "total problem" score, composed of the sum of his scores for the 15 questions (Table 2). The adopted children had the lowest mean score, ($F = 3.5$, 3 d.f. $p < 0.05$) but the only significant difference between groups, using the Scheffé multiple comparisons test (Winer, 1971) was that between the adopted and the institutional children. Thumbsucking and other habits were not included in this score, since they were rarely regarded as problems by parents or nurses. The incidence of thumbsucking was higher in the institutional and ex-institutional groups than in the London working-class children. Frequent nail-biting was reported most often in the London working-class group and other habits, including those traditionally associated with institutionalization, e.g. rocking, and head banging were rare in all groups.

For institutional children, there was no relationship between the number of his caretakers or whether or not the child had changed institutions and his "problem" score. However, only two children had had fewer than ten caretakers in the past two years.

In a constantly changing social environment it might be expected that regular contacts with a parent or parent substitute would assume importance. Of the 14 institutional children visited by a parent, only three were visited regularly and frequently. The remaining parents visited either at infrequent irregular intervals, or made frequent visits for a while followed by long unexplained absences. Eight children with no parental contacts had been found a local "aunt", who was often a potential foster-mother. Four of these invited the children to their homes weekly, but the other four after a period of visiting had stopped seeing the children. Four children had never been visited. The 15 children with irregular or broken parent or substitute parent contacts more often had an above average "total problem" score than either the children who were regularly visited or those who were never visited ($\chi^2 = 7.8$, d.f. 3, $p < 0.05$). The four children with the highest "problem" scores were all overtly distressed by the cessation of visits.

Both institutional and ex-institutional children might be expected to suffer greater anxiety than the London group. The institutional children witnessed a constant flux of staff and children, and were often aware that there were no certain plans for their own future. The restored and adopted children, having experienced one major change, might reasonably be apprehensive that another was possible. However, no significant difference was reported between the groups in the incidence

of general fears and worries. All the nurses were asked whether they thought the institutional children worried about their future. Eight children were said to express such an anxiety; their "total problem" score was not higher than that of the other institutional children. The mothers of the restored and adopted children were asked whether they ever threatened to send the children back to the institution, and whether they thought the children worried about such a possibility. Two adoptive and eight natural mothers said they sometimes or often used this threat, but only two adopted and no restored children were said to worry about the possibility. Five restored, but no adoptive children, at times asked to be returned to the institution.

2.ii *Attachment behaviour.* At the age of 2 we found the London working-class children showed a definite preference for a small number of people, usually their parents and grandparents. Almost all (93 per cent) followed one or other parent round the house, and half usually cried if they saw their mother leave the house, but not the room. By contrast the institutional children, although they had preferences, showed attachment behaviour of a more immature form to a large number of nurses. Thus, almost all of them ran at times to be picked up if a familiar nurse came in the room, and cried if she left the room, behaviours outgrown by most of the London children. By the age of $4\frac{1}{2}$ less than a half of the London children at times followed a parent around; most were happy to spend a day at school or with a neighbour. The institutional children no longer ran to be picked up, but significantly more institutional than London children showed following behaviour. Further, the only children described as "very clinging" were institutional children.

Although the institutional children were said to follow and to cling to adults more than the other children, the nurses often complained of their shallow affections. Only 2 children were said to show no preferences between nurses, but 17 were said not to complain if their favourite nurse was off duty, and 9 children to have shown no distress when their group nurse left the institution. (Two children had not lost a group nurse within the past 2 yr, and the information was not available for 5 children who had recently changed institutions.) Ten children, however, had clearly been very distressed; their reactions included crying over a long period of time, "clamming up", refusing the attentions of the new nurse, tantrums and nightmares. However, at the time of interview 18 of the 26 children were said by their nurse "not to care deeply about anyone". Of these, 8 seemed emotionally detached from adults; they did not follow the staff around, or pay much attention to strangers, and their mean "problem" score was significantly lower than that of the rest of the institutional children ($F = 4.8$, 2 d.f. $p < 0.05$). The other 10 children who were described as having no deep attachments nevertheless constantly tried to make contacts with adults. They followed around after any staff on duty, and many of them were described as markedly attention-seeking, very clinging, and/or over-friendly to strangers. The eight children whom the nurses described as deeply attached to them, also tended to follow staff around, but less often made approaches to strangers. Only the first two groups differed significantly in their mean problem score, using the Scheffé Multiple Comparison Test, Winer (1971).

All but four of the adopted children were thought by their adoptive mothers to be deeply attached to them, and the adoptive parents often spontaneously commented that their adopted child was more affectionate than their natural children.

However, some adopted, restored and institutional children, but no London children, were also said to behave affectionately towards strangers, and to allow strangers to put them to bed and comfort them, if they were hurt. This "overfriendliness" to strangers was usually a cause of concern to their parents.

2.iii *Self-help, routine, and venturing from home.* The traditional impression that English working-class children tend to be subject to an irregular routine, with few demands made on them but considerable neighbourhood freedom, was confirmed. The London group were least often expected to dress and wash themselves and tidy their possessions, and together with the restored children were most likely to have an irregular bed-time. The institutional and ex-institutional children were very independent in caring for themselves; adoptive mothers often remarked on how "well trained" the child had been. However, the institutional children were not often allowed to venture from home on their own.

2.iv *Parental assessment of change.* All the adoptive mothers considered that the children's behaviour had improved since they left the nursery. In 12 cases the child was said to be less shy, or more out-going, and in 5 cases less clinging; 3 children were said to have stopped having tantrums, 5 to be less possessive and 2 to be less attention seeking. Most frequently, both restored and adopted children were described as initially quiet and shy and clinging; this was in accord with our assessment of the majority of institutional children at 2 yr and at 4½. Twelve out of the 15 natural mothers thought their restored children had changed, but in the case of 4 children who were said to have become wild and disobedient they considered the change was for the worse.

3. *Ratings of emotional climate.*

There were significant differences between the groups in the frequency with which anxiety and expressions of positive and negative feeling to the children were observed. The adoptive mothers expressed significantly more positive feelings than the London working-class mothers or the mothers of restored children ($F = 5.2$, *d.f.* 3, $p < 0.01$); both the mothers of the restored children and the London working-class mothers expressed significantly more negative feelings and anxiety than the adoptive mothers or the nurses ($F = 8.8$, *d.f.* 3, $p < 0.001$ for negative feelings, $F = 7.0$, *d.f.* 3, $p < 0.01$ for anxiety. The Scheffé Multiple Comparisons Test was used in making these comparisons.)

Effect of age at leaving institutions—No relationship could be discerned in the ex-institutional groups between age of leaving the institution and either the child's problem score or whether or not he was described as "over-friendly" or "indiscriminately affectionate". All the children had been in their new homes at least six months.

Sex differences—In the London working-class group more boys than girls wet their beds, and were considered clinging by their mothers, and at each stage in the interview we rated the boys as less friendly than the girls. However, none of these differences were significant. In the other groups there were not enough girls to make sex comparisons possible (Table 1).

Relationship between interview data and observed behaviour—For some behaviours we were able to compare our observations of the child in a standardized situation with the mother's or nurse's report. There was a significant correlation between our

rating of the child's response to our initial greeting and the mother's assessment of whether he was shy, friendly, or "over-friendly" to strangers ($r = 0.47$, $p < 0.001$, $n = 95$), and also between this assessment and our rating of his behaviour towards us in the second half of the interview ($r = 0.40$, $p < 0.001$, $n = 95$). There was also a low but significant correlation between our rating of his behaviour to us in the second half of the interview and his mother's assessment of the extent of his attention seeking ($r = 0.27$, $p < 0.01$, $n = 95$). There was a significant correlation between our rating of the child's restlessness during testing, which depended on the number of times he left his chair, and his mother's account of how long he would sit still ($r = 0.49$, $p < 0.001$, $n = 95$) and a smaller correlation between our rating of concentration during testing, which depended on the number of times he had to be checked from distracting activities, and his mother's assessment of his ability to concentrate ($r = 0.25$, $p < 0.02$, $n = 95$).

DISCUSSION

In most studies of institutional children it has been impossible to isolate the effects of multiple caretaking from those of poor quality institutional care (a low adult-child ratio, unstimulating environment) and/or adverse early experiences, a history of foster-home breakdowns, or periodic returns to a disturbed family (cf. Rutter's discussion, 1972). However, in this study we were able to find a group of children who had been since early infancy in continuous care in institutions with a high staff-child ratio and a stimulating environment, but who had been cared for in a rather detached way by a large number of nurses. The comment of one matron, "we don't encourage the children to become too attached, it isn't fair to them, it isn't fair to us" summarizes this policy. The prevalence of reported behaviour problems in these children at $4\frac{1}{2}$ yr was no greater than in the group of London working-class children living at home. Bed-wetting, an objective, hard-to-miss measure, was no more frequent in the institutional than the London group, despite the fact that there were twice as many boys as girls in the institutional group. This finding is of particular interest since bed-wetting has almost always been described in previous studies, using similar methods, as part of the pattern of institutional disturbance. The evidence from this study therefore suggests that the raised prevalence of anti-social and other forms of disturbed behaviour often found in institutions is related not to early institutional rearing per se but to poor quality institutional care and/or the children's early experiences and later contacts with their own disturbed families. In this connexion it is of interest that the children with the largest number of reported problems in the present study were those overtly disturbed by the recent breakdown of parental or substitute-parent contacts.

An alternative explanation of the findings is that the effects of institutional upbringing of this kind are cumulative, or reveal themselves at a later stage. Thus, the accumulation of broken relationships with staff who leave may eventually lead to chronically disturbed behaviour, or the high incidence of temper tantrums in these children may be prognostic of later anti-social behaviour.

In this connexion it may be noted that there was a different pattern of behaviour problems in the institutional and working-class groups. The problems described by the London mothers (disobedience, problems at mealtimes, not settling down when

put to bed, never sitting still) were essentially disciplinary, and the mothers often described themselves as in constant battle with their child. The institutional staff, on the other hand, reported few disciplinary problems; the institutional children's most frequent problems were poor peer relations, temper tantrums, clinging, and poor concentration.

Although the institutional children were not as a group "maladjusted", the affectional development of many of them appeared to be atypical. Almost all had preferences between the nurses, but most were said to be "not deeply attached to anyone". Since it was the deliberate policy of most matrons to discourage close relationships, and since staff changes were very frequent, this outcome is highly predictable. More surprising is the failure of this socialization process, in that eight of the children were described as closely attached to their nurses and a further ten followed around and sought attention from any adult on duty. This behaviour may reflect inconsistencies in staff behaviour: on the one hand they tried to remain "uninvolved" with the children, on the other hand they often deplored the children's coldness and fickleness, and at times probably encouraged affectionate responsiveness.

In an earlier study we found a marked relationship between the organizational structure of the institution and the children's language development (Tizard *et al.*, 1972). Only seven children in the present study lived in institutions where the staff directly caring for them had a high degree of autonomy—the variable found previously to be associated with good language development. Those children did indeed have a significantly higher mean Full-scale WIPPSI I.Q. (Wechsler, 1963) than the other institutional children (112.9, high autonomy groups: 101.8, remainder, $t = 2.8$, $p < 0.01$) but their mean "problem" score was not significantly different, and most of them belonged to the group of children who were said not to care deeply about the staff but to be clinging and attention-seeking. Despite great improvements, these institutions have so far been unable to provide children with long-term stable affectionate relationships, and this important area for service research remains almost uncharted.

For the future development of the children it is important to know whether their present modes of response to adults are permanent. The evidence of this study suggests that up to the age of four when placed in a family setting most children from these institutions will develop normal affectional bonds with parent figures. None of our adoptive parents had to "woo" their children, but were immediately and enthusiastically accepted as parents. However, there was some evidence that after adoption the affectional behaviour of these children remained somewhat atypical. Although most of the adoptive parents believed that their children were deeply attached to them about a third were concerned by their "over friendliness" to strangers; in addition almost all of the adopted children were exceptionally affectionate, and more friendly to strangers than home-reared children.

Most previous studies have found that children adopted after the age of two tend to present numerous problems (Seglow, Kellmer Pringle and Wedge, 1972). The success to date of the adoptions in our study may depend on two factors: (1) *The history of the children.* Until they were placed the children had been continuously reared in nurseries with a high staff ratio, whilst most late adoptions tend to be of children who have experienced a number of foster-home changes, or who

have been reared in poor quality institutions. (2) *The attitudes of the adoptive parents.* Traditionally, adoption has been sought as a remedy for infertility, and social workers have attempted to "match" the characteristics of the adoptive parents and child. In our study there had rarely been a possibility of "matching"; seven of the 24 children were of mixed race, and in all but five cases the adoptive fathers were of higher social class than the natural fathers of their child. Fourteen adoptive mothers already had children of their own; a further two had been the child's nurse and adopted him soon after marriage. Most of the parents saw themselves as providing a needy child with a home, and this motivation, long suspect with adoption societies, may well provide a more favourable environment than the "normal" motivation of infertility.

These findings are all unavoidably contaminated by the investigator's knowledge of the group to which the child belonged. In addition, doubts are bound to arise about the comparability of interview data obtained from diverse groups, e.g. it could be argued that adoptive mothers would tend to under-report problem behaviour. Some validation was found in the partial agreement between the mother's account of certain behaviours (response to strangers, attention seeking, restlessness, and ability to concentrate) and our assessment of these in a standard situation. Further validation must await evidence from their teachers when the children attend school.

Policy recommendations derived from a small study can only be made tentatively, but there is other evidence (Seglow *et al.*, 1972) to support the view that adoption should be considered earlier and more often for illegitimate children whose mothers are not able or willing to look after them. Adoption had been delayed for at least 2 yr in our study either because of prolonged and largely irrelevant investigations into the family background, or because of the mother's indecisiveness or because it was hoped that she might eventually reclaim the child. There was an assumption by the authorities that the natural home would be best for the child, and in the case of the restored children pressure had often been put on the mothers to reclaim their child. Many of them lived in difficult material circumstances, often with several other illegitimate children to support. Four mothers expressed dislike of the child to us, and eight said they often threatened to send him back to the institution. A larger group of children were still in institutions at the age of 4½ because it was hoped that the mother would eventually claim the child, or because it was not considered possible to place them for adoption. Although these children were not as a group behaviourally disturbed the atypical affectional behaviour of many of them would seem likely to make for difficulties in future inter-personal relationships. By contrast, in every respect assessed, the development of the adopted children to date appeared more satisfactory.

SUMMARY

The behavioural problems and affectional relationships of 26 children aged 4½, continuously reared in institutions since early infancy, were compared with those of 30 working-class children living at home. Thirty-nine children of the same age who had been adopted from an institution or restored to their mothers between the ages of two and four were also studied. The institutional children had different, but no

more frequent problems than the working-class children; the adopted children had significantly fewer problems than the institutional children. A minority of the institutional and ex-institutional children were "over friendly" to strangers and indiscriminately affectionate; most of the adopted but few of the institutional children were believed to have formed close attachments to adults.

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ANNOTATIONS

THE TREATMENT OF ANOREXIA NERVOSA IN CHILDHOOD AND ADOLESCENCE

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A REVIEW of the literature relating to anorexia nervosa reveals widely different views on the nature of this disease and its management. The main reason for these differences lies in the fact that although one hundred years of interest in the condition has passed since Gull and Lasègue first described it, it is still not a well-defined entity but merely a descriptive category.

Anorexia nervosa can be defined as a disease characterised by severe loss of weight which is caused by the patient deliberately restricting food intake. There is a considerable loss of weight as a consequence. The patients also show faulty perceptions of their own body image, unusual eating habits, unusual interest in their own food intake and the intake of others, and a considerable increase in bodily activity. The most important clinical symptoms besides loss of weight are amenorrhoea, a lowered basal metabolism, reduced blood pressure and pulse rate, dry scaly skin, acrocyanosis and constipation. By far the greatest number of patients begin to show symptoms between the ages of 10 and 20 years, and the disease occurs much more frequently in females, although undoubtedly examples of the condition occur in males (Beumont *et al.*, 1972).

Even though the disease is difficult to define, it is, when fully developed, easily recognized. All the same there are such great differences in the way patients present, that when deciding a course of management it is important to take into consideration the various symptoms (e.g. eating habits and over-activity), personality type (e.g. hysterical, obsessive-compulsive, depressive), age, sex and family background (Theilgaard, 1965; Tolstrup, 1970).

Because severe under-nourishment can undoubtedly have long-term harmful effects (Eitinger, 1965), and because a significant part of the symptomatology can be explained purely on the basis of under-nourishment or malnutrition, it is justifiable initially to concentrate therapeutic measures on counteracting this under-nourishment. This means that a high calorie diet and in rare instances even tube feeding, may be an important part of the first stage of treatment of these severely ill patients. Long-term treatment however, must concentrate on a psycho-therapeutic approach in an attempt to produce lasting physical and psychological improvement. It must be accepted however, that even a purely physical approach to treatment often

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brings with it a psycho-therapeutic element, depending upon the manner in which the physical treatment is administered and under what condition it is carried out.

Hormone treatment based on the belief that the etiology of the disease is primarily endocrinological, a view which is impossible to sustain today, has a very limited place. However gonadotropins or similar agents may have a useful limited effect in acting as a trigger to release a normal menstrual cycle (Marshall *et al.*, 1971).

Drugs to stimulate appetite are not recommended because in fact the patient is usually not without appetite but, on the contrary, is consciously or unconsciously fighting against a normal appetite or unusual greed. Drugs which have the effect of stimulating appetite may therefore merely heighten the patient's conflict over eating.

Several authors have recommended the use of neuroleptics of the phenothiazine group (Dally and Sargant, 1966). Often satisfactory results, as far as weight gain is concerned, have been achieved by using drugs combined with concentration on improving dietary intake, and a strict regime of bed-rest in hospital (Frahm, 1965). In these circumstances it is obviously difficult to decide which factors in the treatment have been most effective. In a few cases where depressive symptoms seem to be paramount, tricyclic antidepressants may also be useful in treatment.

As in other fields of psychosomatic medicine, operant conditioning has been suggested as a suitable form of treatment and in certain cases appears to have yielded good results as far as weight gain is concerned (Stunkard, 1972). When evaluating this form of symptom-centred treatment it is important to establish aims. In order to produce a rapid increase in weight, behaviour therapy seems established as one of the more effective forms of treatment. However no follow-up studies have been able to confirm any long-term effects of the use of behaviour therapy.

Psychotherapy has mainly been individual in type until recent years, but more recently a family therapy approach has been suggested (Selvini-Palazzoli, 1970). A consistent individual psychotherapeutic approach along Freudian lines has been recommended by Thoma (1972), who has a considerable personal experience in the treatment of this condition. Thoma regards anorexia nervosa as a disease with variable psychogenesis, but in which unconscious conflicts about the eating situation are a common etiological factor, and this is the basis of his long-term intensive psychotherapeutic treatment. By contrast Bruch (1973) suggests that eating problems are not the most important factors, but the desire to lose weight is regarded by her as paramount. Consequently, in her opinion, the therapist should not attempt to deal with the eating problems, but should concentrate on the patient's altered body image, which represents her insecurity about herself. Bruch applies intensive psychotherapy in order to strengthen personal independence as a main aim in treatment. Selvini-Palazzoli (1970), whose theories are in many respects similar to Bruch's, also applies an intensive psychotherapeutic method centred around the evolution of adolescent problems.

When evaluating results of treatment, it must be borne in mind that the disease has a tendency to an undulating course with unforeseen remissions and recurrences. It is a rare condition, or was so until recently, the incidence of hospital treated cases being less than 1 in 100,000 (Theander, 1970). In order to obtain a group of patients treated and examined uniformly, it is therefore necessary to have experience in the

field over many years. The main problem in the evaluation of published material is that cases are selected in different ways and the criteria for improvements are variable.

Some authors maintain that the younger the patient is identified the better the prognosis, but at least one study has been unable to confirm this view (Tolstrup, 1965). Late onset of the condition, however, i.e. after the age of 20 years, does seem to be connected with a greater risk of chronicity (Theander, 1970). Age does however play some part in the choice of treatment, as a more structured and authoritarian form of psychotherapy may be appropriate with younger patients.

Until recently, it has been considered that treatment in hospital was necessary for all fully established cases. Today however, several authors maintain that outpatient treatment is preferable (Reinhart *et al.*, 1972). Again this is a question that must be considered individually. Hospital treatment has the advantage that physical measures (including dietetic treatment) is under firm control, and that the firm structure of the ward may be psychotherapeutically helpful. Furthermore hospitalization may represent a release for the patient from the family. In any case, it is important that physical treatment and psychotherapy is closely coordinated, whether the two are carried out by the same person as Thoma (1972) recommends, or whether the two forms of treatment are managed by different therapists, as Bruch (1973) suggests. Continuity and consistency are essential elements in treatment. Continuity should be maintained by seeing that the patient has the same therapist if necessary over a period of years. Consistency can be said to exist where the patient knows exactly what to expect from her therapist in each stage of treatment.

The first aim of treatment is to ensure that the patient survives and will not be severely affected by under-nourishment. The second is to ensure that there will be no relapse in her condition. The third aim involves the removal of overt psychopathology. If only the first aim is borne in mind, then it is possible to achieve success in a variety of ways. The second aim can also be achieved for approximately one-half to two-thirds of patients (Tolstrup, 1965). However as far as the last aim is concerned, this is only likely to be achieved, even with the best available treatment, by a few patients suffering from the condition. Some authors have suggested that there are a number of mildly affected cases which are not in need of intensive treatment, that there is in fact a continuum from these to "normal" variations in eating, weight fluctuation, and menstruation during adolescence.

Over the past few years there has been much discussion whether anorexia nervosa is increasing in frequency (Theander, 1970; Duddle, 1973). If this is the case, then preventative measures must be considered. Although we do have some knowledge about etiological factors, such as pre-morbid over-weight, and early onset of menstruation (Crisp, 1970), we certainly do not know sufficient about these to attempt primary prophylaxis in the sense of elimination of causal factors of the condition in society generally. One important point to make is that the demands made on pubertal children and adolescents, especially psychosexually and perhaps especially on girls and young women, are increasing at the same time as the sexual female role is becoming more insecure. For the time being however, we must confine ourselves to secondary prevention—to tracing patients and treating sufferers from the condition as early as possible.

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GRID TECHNIQUES FOR CHILDREN

A. T. RAVENETTE*

INTRODUCTION

As YET there exists no body of work on the clinical application of grid techniques for children. Livesley and Bromley (1973) however present a thoughtful and well documented account of the development of interpersonal perception through childhood to adolescence, which must be considered a standard reference to the subject, although its clinical relevance is less direct.

THE GRID

The grid was developed by Kelly (1955) as a technique whereby a client could be invited to disclose his ways (i.e. constructs) of discriminating his world of people (i.e. the elements) and to show in what ways they are in fact discriminated. His responses are entered into a grid which can then be analysed statistically to show the ways in which constructs are related and the ways in which people are perceived as alike or different. A full discussion of grid methodology is given by Bannister and Mair (1968) who also report important modifications of grid technique. These include the possibility of using photographs instead of real people and the provision of constructs by the investigator rather than the client. These modifications allow a wide range of statistical treatments to grid data and the possibility of standardizing the grid. These changes became an essential component in the development of grid techniques for children.

CONSTRUCTS FOR CLINICAL USE

A construct represents one way in which two things are alike in contrast to a third. It provides, in relation to people, a basis for identifying most personal interactions. With adults, personal constructs can be verbalized to varying extents but in early studies with children it was not found profitable to attempt to elicit a child's own verbal constructs. In any case there was no established work to indicate how a child's system of personal constructs developed.

Kelly (*op. cit.*) suggests a progression from states of the organism, through individual persons (e.g. parents) to constructs which can be verbalized, and experience suggests that a person's actions may also represent a stage of construct development. These ideas have led to the provision of constructs for children to use which have been based on people and affective states, e.g. "would make mother angry/

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pleased", "teacher angry/pleased", "other children angry/pleased". Constructs can also be provided which relate to the complaint about the child, e.g. "doesn't like school". Not infrequently children do provide their own constructs spontaneously (e.g. bigheaded) and these can be built into a grid. In essence the grid then becomes a means of investigating hypotheses about the child in relation to his world of significant people, with special reference to how they affect him and he affects them.

ELEMENTS

Any set of people, situations or objects may provide elements for a grid. There are difficulties, however, when a child is invited to construe real people in a systematic manner. Many children refuse to pass what they consider to be judgements about people. Many use different construct systems for adults than for their peers and many have different systems for contrasexual figures (see Livesley and Bromley, *op. cit.*, for confirmation of this). It is possible, however, to use sets of photographs of same sex, same age children as elements for a grid since these help to overcome such difficulties.

It is often more fruitful to use pictorial representations of situations as elements for a grid. The Pickford Projective Pictures (Pickford, 1968) offer a rich source of postcard size elements and the Family Relations Indicator (Howells and Lickorish, 1967) provides elements which are specifically family based. (Currently the author is using a set of school based situations specifically designed by Mr. E. Jordan.) When situations are used the child is specifically invited to see himself as a person in the situation. In general the number of elements should be seven or eight when the child is asked to rank order them. An alternative method uses 16/18 elements and the child is invited to place elements within two opposite categories (e.g. "mother would be pleased", "mother would be angry") or into a "don't know" category (Ravenette, 1964, 1970).

ANALYSIS OF GRIDS

For rank ordered grids Spearman's rank order correlation is used, for "categories" grids, matching scores are used. The resulting correlation matrix can be analysed by principle components programmes (Slater, undated) or more easily by Hierarchical Linkage Analysis (McQuitty, 1966). The latter method can be carried out very simply "by hand" and produces very similar results to those from the computer. The outcome of the analysis indicates how constructs go together and how elements are related within the construct system. A "two-way" analysis for elements within clusters has recently been developed (Ravenette, 1972) which isolates the influence of specific elements within each cluster of constructs.

FURTHER ELABORATION

The administration of a grid can act as a powerful technique for eliciting the child's own constructions of the elements with which he has been operating. To this end he is invited to talk fully about each element after he has completed the grid. In this way it is possible to link the use of the investigator's prescribed con-

structs to the child's spontaneous constructions of photographs or situations by means of the statistical analysis of the grid itself. The two-way analysis is based on this further elaboration.

AN EXAMPLE

Matthew is ten years old. He chooses not to work at school, is aggressive to other children and sometimes defiant to teachers. He is the older of two adopted boys in a lower middle class family. A school situations grid with eight elements and eight constructs was used and the constructs refer to self, teachers, other children and parents as the significant people and "pleased" and "different from" as affective states. Specifically *M* was invited to choose, in turn, the situations in which he would most likely be pleased with himself, and least likely to be pleased with himself, and the process was repeated until all situations were rank ordered. The same procedure was then used for each of the 8 constructs. The rank ordered data appears in Table 1 and the resultant correlation matrix in Table 2.

TABLE 1. RANK ORDERS FOR EACH SITUATION BY CONSTRUCTS

Constructs Most likely that/least likely that	Situations							
	1	2	3	4	5	6	7	8
1. You would be pleased with yourself	3	2	7	4	5	6	8	1
2. Teachers would think you are different from other children in class	5	7	2	6	3	4	1	8
3. Other children would be pleased with you	4	2	5	3	6	7	8	1
4. Parents would think you are different from other children in the class	2	7	4	3	5	6	1	8
5. Parents would be pleased with you	8	4	5	2	1	6	7	3
6. Other children would think you were different from them	2	7	5	3	6	4	1	8
7. Teachers would be pleased with you	5	2	6	3	4	7	8	1
8. You would feel different from other children in the class	1	6	5	3	8	4	2	7

TABLE 2. CORRELATION MATRIX TO SHOW CONSTRUCT RELATIONSHIPS

	1	2	3	4	5	6	7	8
1								
2	0.95							
3	0.90	0.90						
4	0.60	0.64	0.55					
5	0.31	0.33	0.38	0.48				
6	0.60	0.57	0.62	0.93	0.62			
7	0.90	0.88	0.93	0.64	0.64	0.74		
8	0.31	0.26	0.31	0.79	0.76	0.90	0.55	

It can be seen in Table 1 that the odd numbered constructs are in general the reverse of the even numbered constructs. In the correlational analysis the even numbered constructs have been reversed with a consequent reversal of the meaning of the constructs. Hierarchical Linkage Analysis showing how the constructs go together, is presented in Fig. 1.

Two observations can be made from this analysis. In the first place it seems broadly the case that for Matthew, to be pleased with himself and for others to be pleased with him he must see himself, and others must see him, as the same as other children. He is very aware however that he is, by virtue of his being adopted, different from other children. In the second place the two clusters separately suggest that he is sensitive to differences in the interpersonal contexts provided by teachers on the one hand and his parents on the other.

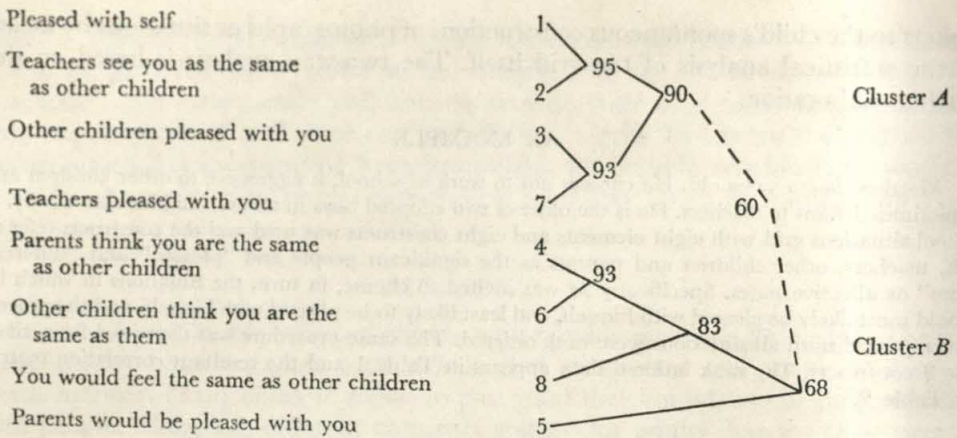


FIG. 1. Hierarchical linkage analysis for constructs.

The results of a two-way analysis are indicated with the actual stories which *M* told. Situations labelled *A* and *B* respectively refer to Clusters *A* and *B* and the subscript + and - indicate the two ends of the Construct Cluster (i.e. most likely as opposed to least likely).

THE SITUATIONS AS DESCRIBED BY MATTHEW

1. Teacher is telling off one of the boys in class for not doing his work. (*Q*. I'm not the boy being told off. I'm helping the teacher get out of his seat in case the boy tries to run out of the classroom.) (Cluster *B*-.)
2. I like football. I seemed a lot peaceful (*sic*) when I'm playing football than at other times. (*Q*. I'm helping the other boy up, he may have tripped. Helping the boy is important.) (Cluster *A*+ *B*+.)
3. A whole school in the hall singing hymns together. (*Q*. I'm on the dais, I like to sing out. I would like to be called out.) (Cluster *A*-.)
4. A few people in the classroom doing the normal work doing some sums at the time. (*Q*. I'd like to be one of them really.)
5. If I was in that picture I'd like to be able to do some work on my own. (Cluster *B*+.)
6. Nice peaceful setting, not too far away from the house, a bike shed. (*Q*. I'd like to go to that school. He sees this as a different school.) (Cluster *A*-.)
7. Some of the people are mucking about in the class. (*Q*. I'm picking up the boy whose fallen and cut himself.) (Cluster *A*- *B*-.)
8. People playing in the playground, apparatus, ropes and slides. It would be good fun to play there. (*Q*. I would be climbing up the rope.) (Cluster *A*+ *B*+.)

This material suggests a wealth of observations from which in relation to the two-way cluster analysis, an understanding of Matthew might be inferred. The exercise, however, goes beyond the scope of this paper.

CONCLUSIONS

Grid techniques provide flexible means whereby children can be invited to communicate various aspects of the ways in which they affect, and are affected by, their world of people. They are suitable for children from about the age of eight years and upwards. They are fairly quick to administer, and the statistical analysis is easily carried out by the psychologist himself. They have the special advantage of involving the child directly in looking at himself and others.

Two novel grid techniques in relation to the family are currently being developed and it is hoped to present these at a later date.

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BOOK REVIEWS

Mental Retardation and Behavioural Research. Study Group No. 4. Ed. by A. D. B. CLARKE and A. M. CLARKE. Churchill Livingstone, Edinburgh and London, 1973, pp. v + 279. £5.00.

THIS book is a report of the proceedings of a three day study group organized by the I.R.M.R. and held at Hull in 1971. The proceedings are edited by Professor and Mrs. Clarke.

The purpose of the study group was to bring together the workers in behavioural research, mainly psychologists and the practitioners—in this case, teachers, inspectors, tutors, etc. On the whole, the study group was concerned with S.S.N., not S.N. children attending day schools rather than children in hospital. There were no nurses present and only one doctor. There was one useful session devoted to the training of adults. Six topics are presented in two papers each followed by a discussion. Sometimes the linking of the papers devoted to a topic is not clear. Most of the papers are given by the research workers. There is a preface, a formal discussion and an overview written by the Clarks.

In a short review it is not possible to cover every session. In the introduction the editors point out that there have been major breakthroughs in the fields of biochemistry and genetics in relation to mental retardation and suggest that the application of behaviour modification techniques to the education of the mentally retarded may be the corresponding psychological breakthrough. However, no session is devoted to behaviour modification, though there are many references to it.

One of the crucial questions which was discussed repeatedly was the controversy between the developmentalists and the defect theorists. The developmentalists who think that the mentally retarded go through the same stages as the normal, only more slowly and with a lower ceiling of attainment, tended to be implicitly associated with the provision of an enriched, but unstructured environment and the possibility of diagnosis by degree of retardation. The defect theorists tended to be linked with a structured programme, emphasis on the heterogeneity of the subnormal, with consequent repudiation of assessment of degree of handicap by conventional cognitive tests and the teaching of predetermined target behaviours by the techniques of behaviour modification. Another topic constantly discussed was the need to bridge the gulf between research workers and practitioners by carrying out research in practical situations, i.e. in classrooms with the co-operation of the teachers. Everyone was agreed on this, just as everyone was agreed that the retarded needed a more structured teaching programme than normal children. The more theoretical psychologists, Herriot and Serpell seemed to find both defect theorists and developmentalists were wrong to ignore each other and wrong to ignore (a) the limitations of present knowledge and (b) knowledge that exists in relevant fields, i.e. attention theory and memory. These papers struck a note of caution which was not fully explored in the consequent discussion session.

One of the most useful papers was that of Professor Mittler on the development of language. He reconciled the two views by suggesting that one uses normative data, where it exists, to suggest a programme, but has to bear in mind that some retarded children may have specific defects. He suggested the use of behaviour modification techniques to implement the programme at least for part of the day. He suggested that each class of retarded children should have two staff, a teacher who is trained in diagnosis and assessment and who is, therefore, responsible for drawing up individual programmes for each child and carrying these out in individual sessions in a cubicle off the classroom. The second staff member looks after the rest of the class when they are not having individual teaching. Another point made in favour of behaviour modification was that the principles could be taught to teachers and parents. This is enormously important, but it seems to me to be a matter for further research. There are many apparently opposite views stated in this book, of which the use of the teacher as diagnostician is one—this is not clearly reconciled with the role of the psychologist, which is seen by various speakers as that of programme planner and interpreter of results to teachers.

This book does raise vital questions relating to the education of the severely subnormal. Perhaps its greatest virtue is to bring the research workers and the practitioners together.

ELSPETH STEPHEN

The Study of Games. E. M. AVENDON and B. SUTTON-SMITH. John Wiley & Sons Inc., New York, 1971, pp. xiv + 530. No price stated.

SUTTON-SMITH's definition of play and games as the "exercise of voluntary control processes" looks like a promising start to experimental investigations of behaviours which have long been considered irrelevant or not amenable to systematic study. Unfortunately, it bears little relation to the contents of this book. This is, in fact, a collection of papers on historical, anthropological and folklore sources of types of games played and their use for military, industrial, educational and therapeutic purposes. As such, it performs a useful function as a reference book for students of sociology and anthropology, although the bibliographies tend to be selective rather than exhaustive.

For psychologists, the main interest should lie in the final chapters on structure and function. The theoretical orientation here is an amalgam of derivatives from psycho-analytic theories and Sutton-Smith's view that games function as social training and are motivated by the individual's conflicts and frustrations engendered by his society. Presumably play and games have both social and personal significance. But speculations that "in Association Football the ball is symbolically a dirty and dangerous object . . . so powerful in unconscious meaning that it must not be touched by hand", while in "Rugby Football the ball might be regarded as a loveable object that every player tries to caress and hold . . . a symbol of maternal images", or that chess exemplifies the theme of patricide and denials of it, are unlikely to be more helpful than an earlier legend, quoted here by Reidl, that chess was invented by Adam to console himself for the death of Abel.

The relation found by Sutton-Smith and his co-workers between child rearing variables and the prevalence of certain types of games in different societies, reported here, is well-known by now. Although this finding is of interest, it provides little more than *prima-facie* credibility for their theory, as Sutton-Smith explicitly recognizes. He envisages further more substantive studies. In an area where our ignorance far exceeds any knowledge these will be most welcome. At the same time it may be questioned whether his theory is the best tool for asking the right questions. We need to know far more about the specific conditions which determine different kinds of play on the one hand, and those associated with adult leisure pursuits and the social organization of games on the other, before enquiries about links between the two can yield definitive information. Interdisciplinary approaches are not necessarily illuminating even if they happen to be fashionable.

The concept of control processes has quite specific and (theoretically and methodologically) different meanings in, for instance, studies of the development and organization of motor skills, and of memory and problems solving. The possibility that such studies can produce spin-offs for problems about exploratory and movement play, or questions about dramatic and fantasy play, respectively, is worth taking seriously. But clearly, the concept of social control in organized games and sports is at still a different level of enquiry.

The present book does not make clear which—if any—of these concepts of control processes Sutton-Smith intended. For the student of psychology, therefore, the book is disappointing and somewhat irrelevant.

SUSANNA MILLAR

The Effects of Psychotherapy. S. RACHMAN. International Series of Monographs. In **Experimental Psychology**, Vol. 15. Pergamon Press, Oxford, 1971, pp. 186. Hardback £3.15, Flexi £2.50.

A RECENT report in *Mind* calls for the increased use of psychotherapy dealing with people suffering from mental illness, and for recognition of psychotherapy as a professional speciality and for the establishment of psychotherapists in the National Health Service. At present psychotherapy is a prerogative of the rich and it is felt the advantages should be available to everyone. Rachman's book would question whether the rich are getting value for money and whether the suggestion made by the National Association for Mental Health would not waste more money, since almost all the studies that he quotes would seem to show that interpretive psychotherapy of just the kind extolled by the report in *Mind* is no better than the effects of time. Anyone reading this book who works in the field of psychiatry or psychology whether with children, adolescents, delinquents or adult patients of all

kinds, would go away with the impression that their work is wasted, and it would be better to leave the patients to the influences of their relatives, the butcher, baker, candlestick maker, unless they have been applying the principles of operant conditioning and behaviour therapy. Perhaps at first sight the people who should be most alarmed would be those who work in Child Guidance Clinics—studies are quoted which suggest that there is no difference between the adjustment made by treated and untreated patients.

One cannot help feeling as one struggles from one gloomy page to the next, that the author is engaged upon a crusade, and the phrases he uses in reviewing this research, make it fairly clear whose side he is on. Whenever a psychodynamic approach seems to be being reported as successful, the statement is followed by a cavil of some kind. In one notable piece of research by Humphery where a psychodynamic approach appeared nearly as effective as the operant conditioning approach, Rachman comments about the random allocations to the treatment groups "as ill-luck would have it, the children in the behavioural group were on average, more severely disturbed pre-treatment than the psychotherapy cases".

This book perpetrates a tragic polarity between two forms of treatment, both of which probably have their indications and contra-indications, neither of which are a panacea. Both approaches have been allowed by some people to assume an almost religious or political significance; their protagonists "believe" in them, arguments about them arouse strong emotions. One would have hoped that by now most clinicians in the field were discovering and using those components of different approaches to treatment which seem most effective for particular problems or symptoms. Whereas the research reports which are under review seem still to be trying to find a blanket treatment for everything, nowhere in these reports has an attempt been made to try to narrow down specific components of treatment and to find the effect of these on specific symptom groupings or syndromes.

The level of research as reported, would seem to be as if penicillin was tried on every case that came into a general practitioner's surgery, regardless of the presenting complaint or symptom, and after a year had elapsed all the patients were asked if they had any symptoms or were assessed on some adjustment scale. Alternatively, as if 50 per cent of the patients who attended with bronchitis in December were given an antibiotic and 50 per cent were not. No attention is paid to the immediate response, but in the following July or December, or both, the patients are asked if they are better. Operational definitions of treatment procedures and the phenomena being treated are vital if we are to assess and improve our work, but a religious war can only be destructive.

CHRISTOPHER J. WARDLE

Neonatal Behavioural Assessment Scale. T. BERRY BRAZELTON. Clinics in Developmental Medicine No. 50. Spastics International Medical Publications. William Heinemann Medical Books Ltd., London, 1973, pp. ix + 66. £2.50.

This manual describes a procedure which has been developed over the past decade for the assessment of behaviour responses in neonates. It is described as "an attempt to score the infant's available responses to his environment, and so, indirectly, his effect on the environment". The areas of investigation cover the infant's state of alertness, his responses to standardised stimuli and his ability to control his responses (response decrement). The scale covers 27 aspects of behaviour, 26 of which are scored on a nine point scale. No use is made of summated scores, but response patterns can be seen.

The administration and scoring criteria are described in detail, as indeed they would need to be when attempting such discreet scoring based on a rating system.

The assessment is reported to take 20–30 min to carry out. Many of the tests are those which are common to most paediatric examinations of neonates, such as response to light and sound and testing of primitive reflexes, but with the focus on a very careful and detailed observation of the baby's behavioural responses. It is a measure of the exacting nature of the procedure, that the author recommends "not more than two infants should be assessed in one half day without a rest, since the examiner's fatigue will interfere with his accuracy".

It is clear that the validity of the scoring will depend very largely on adequate training and experience of the examiner; the manual is not intended to be used without such training. Courses and training films are available.

Inter-tester reliabilities for "testers trained at the same time" are reported to be between 0.85 and 1.00. Test retest reliabilities for tests carried out in the first month of life, at intervals of approximately 4 weeks gave means ranging from 0.585 to 0.850. The author comments that "at 1 month of age considerable changes have occurred in the baby and it is to be expected that scores on the battery will be different", so the test retest reliability is not necessarily meaningful in relation to the test procedure as such.

The scale has been used in cross-cultural research studies, which are summarised in the manual; and ongoing studies on groups of abnormal babies are also mentioned.

The value of the assessment scale for research is obviously considerable, provided the examiners have adequate training and expertise. Whether or not it will ultimately find a place as a clinical tool awaits the outcome of further research. Such a delicate "instrument" could easily be abused by careless or inappropriate use. The author hints that it may at some time be possible to use these techniques as a guide to providing the optimum developmental environment for each child, but we are still a long way from this stage.

Apart from the actual use of the scale and scoring system, this manual presents a stimulating example of the detailed and controlled observation necessary for any behavioural research. It should make interesting reading for anyone engaged in or contemplating such research with the very young.

JOAN REYNELL

Language, Brain, and Hearing. J. G. WOLFF. Methuen, London, 1973, pp. xiv + 233. £3.50.

TO QUOTE the author "This book is intended to give an insight into most of the major ideas and issues in the young science of psycholinguistics and to be, at the same time, intelligible to non-specialist readers. It should serve as an introduction to the subject for psychology or language students, clinical and educational psychologists, speech therapists and practising or student teachers. These readers are invited to view Part Two as a "case study" in which some of the theoretical ideas of Part One are applied to the practical problem of facilitating deaf children's learning of language." It is then suggested that the second part of the book will be of special interest to teachers of the deaf and to educational psychologists.

The author is attempting a lot. Part One, the first 142 pp., presents a well-written and refreshingly individual account of psycholinguistics. The notion of the recognition of regularities in sense data is introduced at the beginning; so too is the concept of the hierarchical regulation of behaviour. Accounts of concept attainment, linguistic theory, and the stages of language development follow, with perhaps an excessive emphasis on the theories of Fries. Then an explanation is offered for the acquisition of language based on the two concepts introduced initially; it is argued that phonemes, word classes and acceptable combinations of word classes are learned as a result of the child's perception of regularity of structure of utterances within a context. The author is thus clearly in favour of a general cognitive explanation of acquisition rather than a specific innate language acquisition device. A major omission, however, is an account of the cognitive development which is a necessary condition for language acquisition, and which is also a necessary explanation for particular utterances. For example, a child needs to comprehend the relation between actor, action, and object of action in order to utter or comprehend utterances of such a structure. And one has to suppose that he has semantic intentions which he wishes to express in order to explain why he should utter such a sentence anyway. Other omissions are any detailed account of the social functions of language and the relations of function and structure; and the presently flourishing area of retrieval from semantic memory.

The author's second objective, however, is less successfully met. The second part of the book consists of an account of the several methods of teaching language to deaf children. The author concludes that manual phonemic systems (e.g. Cued Speech), introduced at any early age, stand the best chance of success. It must be stressed, however, that the basis for this recommendation is not the detailed psycholinguistic theory expounded in Part One; nor is it a research programme. Rather, it is the general consideration that such systems best preserve the essential contrasts of language. The two parts of the book thus do not mesh to the extent intended. There are useful appendices giving

various systems for manual signalling, and the book should be of interest to all the target readership. It is a considerable feat to combine knowledge of psychology, linguistics, and the education of the deaf with a clear and interesting style.

PETER HERRIOT

Follow up Study of Hospitalized Adolescents. B. GARBER. Brunner/Mazel, New York, 1972, pp. 194. \$8.50.

A NEW publication about the way an adolescent unit is run, the sort of patients treated there and how they turn out several years later, is welcome since such reports are unusual.

This book thus merits attention since it describes the treatment of a group of 164 boys and girls aged 12-17 at an adolescent unit and the follow-up of 120 of them from 1 to 10 years later.

Some of the relevant literature is outlined. Facilities for the inpatient management of adolescents at the Michael Reece Hospital, Chicago, where the study was carried out, are described in reasonable detail. The author's views about the psychology of adolescence are succinctly summarized.

There is an adequate description of the procedures used. Detailed rating scales were obviously constructed with care and some attention was paid to inter-rater reliability. Those who have attempted similar investigations will be all too familiar with the difficulties reported in locating former patients.

Features of the population studied and of their hospital stay were examined using case records. The group was highly selected. It was mainly middle class. Classification of the disorders caused difficulty and no clear cut diagnostic grouping is presented, although it is apparent that some youngsters had been considered psychotic.

The rest of the book is about the follow-up itself. Although this represents the most important aspect of the study, it is unfortunately the most unsatisfactory. Just over half of those followed up were seen in person, information was gathered on the remainder in a variety of ways. A lot of details about outcome are provided but it is difficult to know what to make of them. Over a third were functioning well, a similar proportion moderately and just less than a third were doing badly. Over a third had been re-admitted to hospital. It would have been better if at least the psychotic cases had been looked at separately. One is left with the impression that a lot of useful information is lurking in the data already collected that could be brought out by a more thorough and systematic analysis.

Finally an attempt is made to relate clinical features of the group during their stay in hospital to adjustment at follow-up. The multivariate statistical techniques used are not properly explained, making it difficult to interpret the findings. The inclusion of psychotic cases may have distorted the results by increasing heterogeneity. Nevertheless, two variables emerged as possible predictors of outcome that will hopefully turn out to be useful in future research. They are involvement with other patients and interest in the youngsters, demonstrated by staff.

Despite the rather unsystematic presentation throughout the book and disappointing lack of clear cut findings all those concerned with the treatment of adolescents will find something of interest here.

IAN BERG

Current Issues in Adolescent Psychiatry. Edited by J. C. SCHOOLAR, Brunner/Mazel, New York, pp. xv + 270. \$12.50.

THIS book is a collection of 29 separate contributions by American workers, mostly psychiatrists, who deal with disturbed adolescents. They are contained in five sections covering normal development, stress, the principal disorders of adolescence, treatment and legal aspects of this stage of development.

The chapter on a model adolescent service for the future, by Ottenberg, is impressive in its vision of increasing community involvement by psychiatrists and the extension of treatment facilities to where adolescents can get most practical help from them. The contributions of Craft *et al.* and of Schiff, to the subject of treatment, are also well worth reading for their practicality and discussion of how psychiatric hospitals can contribute in community services for adolescents.

Another really practical contribution is that of Sobel who deals with the clinical assessment of social stress. In a well written account, Holmes manages to convey in a convincing manner how an idealistic and rebellious adolescent must feel in the face of so many injustices and hypocrisies in modern society. There is also a concise and provocative discussion of drug abuse by Millman and Khuri. Of less clinical relevance is a fascinating hypothesis put forward by Gutmann that American hippy cultural values are very similar to those of the aged, in primitive societies. The only other chapter, which according to the reviewer is worth mentioning specifically, is that on normal adolescence by the Offers, which states their view, that adolescence is a less turbulent phase emotionally than American psychiatrists have believed to be the case until recently.

Unfortunately, these few notable contributions provide the only highlights in what is generally a very disappointing book. There is little obvious connection between many of the articles. Editorial effort to correct jargonistic and sloppy prose, and even to exclude some highly irrelevant and anecdotal material, is obviously lacking. Even the better papers referred to seldom reach a standard sufficient to justify their inclusion in a book, especially at this sort of price.

IAN BERG

Theories of Cognitive Development: Implications for the Mentally Retarded. Ed. by R. M. ALLEN, A. D. CORTAZZO and R. P. TOISTER, University of Miami Press, Coral Gables, Florida, pp. 160. \$8.95.

AT LEAST two of the authors Zigler and McVicker Hunt are very well known and respected figures in the field of subnormal and abnormal studies respectively. Along with their colleagues in this small book they have set about eroding the concept of intelligence, i.e. of the constant and unchanging I.Q. Like others before them, they make a reasonable case for suggesting that inherited intelligence does not account for all the variance. Zigler suggests that strategies in handling data can depend on life experience and Cortazzo that Piaget's idea of a mind changing through interaction with the environment, is better than that of one which doesn't change—but just gets bigger. Elkind notes that motivation is an important differentiator of social classes and says that subjects from the low income groups are not deprived, just different. Allen and Schwarz show that by a liberal restructuring of a care unit, subnormal performance may be relatively improved and McVicker Hunt draws together a number of well known facts concerning the influence of the environment which seem to lead him to the conclusion that environment may influence performance to a level of about 25 per cent. Few would deny this. Finally Toister in 6 to 7 brief pages urges that one should not accept educational defeat before leaving no stone unturned and points again to the importance of nurture and motivation.

The book is short and easy to read and of a sanguine complexion. It might serve as a suitable introduction to the more academic references which the authors quote. The lack of awareness of equivalent English or continental material other than Piaget is a sad comment on the size of the Atlantic Ocean.

NEIL O'CONNOR

CORRECTION

The Publisher wishes to apologize for an error which appeared in the review by DORA BLACK of **The Psychoanalytic Study of the Child**; *J. Child Psychol. Psychiat.* 15, 338.

The year of publication was incorrectly stated as 1973; it should read Volume 27, 1972.

ANNOUNCEMENTS

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West Indian immigrant, children,
intellectual performance, reading attainment

LE, WILLIAM, BERGER, MICHAEL, RUTTER, MICHAEL and YULE, BRIDGET (1975) Children of West Indian immigrants—II. Intellectual performance and reading attainment. *J. Child Psychol. Psychiat.* **16**, 1–17.

Summary—The intellectual performance and reading attainments of 10-yr-old children immigrant and non-immigrant parentage living in an inner London borough were examined using a two stage epidemiological approach. Initial screening by group was followed by individual assessment of intelligence and reading attainment in children of West Indian origin. Differences were found both between immigrant and non-immigrant groups, and within immigrant groups according to place of birth. Attention is drawn to the advantages of a two stage design for the validation of questionnaire information.

indices of frustration,
normal and maladjusted children

HOLSON, JOHN N. (1975) Behavioural indices of frustration in normal and emotionally maladjusted children. *J. Child Psychol. Psychiat.* **16**, 19–31.

Summary—Groups of normal schoolchildren (aged 7–11) and emotionally maladjusted boys (aged 11–15) were exposed to operant successive discrimination training procedures. Subjects in both groups displayed behavioural contrast and mean shift, two phenomena which stem from frustration, and also tended to generalize responding to unreinforced stimuli adjacent to a stimulus associated with reinforcement. The overall behaviour of the two groups was qualitatively similar, but the emotionally maladjusted boys, although older and less likely on this score to be susceptible to the effects of frustration, showed significantly greater incidence of the frustration effects than did the normal children. They also showed a significantly greater tendency to generalize responding.

infants, representational play

LOWE, MARIANNE (1975) Trends in the development of representational play in infants from one to three years—an observational study. *J. Child Psychol. Psychiat.* **16**, 33–47.

Summary—Two hundred and forty-four children at seven age levels between one and three years were observed in four standard situations, in which miniature replicas of everyday objects were presented for the child's free use. The objective was to delineate trends in the meaningful use of these materials. There was a rapid development from the appropriate use of a few objects only, to comprehension of all elements of the set presented. Activities which centred on the child's own body, progressively gave way to doll-orientated activities, the transition taking place around 21 months, the age when children normally start putting words together. Descriptive cross-sections of typical behaviour at each age level were outlined, taking account of sex differences.

Ugandan schoolchildren,
psychological problems

MINDE, KLAUS, K. (1975) Psychological problems in Ugandan school children: a controlled evaluation. *J. Child Psychol. Psychiat.* **16**, 49–59.

Summary—This study examines the incidence of psychiatric symptoms in primary school children in three district areas in the southern part of Uganda, using a symptom questionnaire initially developed for British children. It furthermore compares the patient group with a control population from the same classrooms on various background variables. The results indicate the incidence of disturbances to be significantly related to the place of residence, with the urban children showing the highest rate of behavioural symptomatology. Children from multi-nuclear homes who have changed living places frequently are more often seen as disturbed. Such children also do worse academically and have a much more unrealistic concept of their futures. There is a high correlation between the parent's and teacher's perception of the individual child's problems.

institutional rearing, behaviour problems
and relationships, children

RD, BARBARA and REES, JUDITH (1975) The effect of early institutional rearing
on the behaviour problems and affectional relationships of four-year-old children.
J Child Psychol. Psychiat. **16**, 61-73.

Summary—The behavioural problems and affectional relationships of 26 children
aged 4½, continuously reared in institutions since early infancy, were compared with
those of 30 working-class children living at home. Thirty-nine of the same age who
had been adopted from an institution or restored to their mothers between the ages
two and four were also studied. The institutional children had different, but no
more frequent problems than the working-class children; the adopted children had
significantly fewer problems than the institutional children. A minority of the institu-
tional and ex-institutional children were "over friendly" to strangers and indiscrimin-
ately affectionate; most of the adopted but few of the institutional children were believed
to have formed close attachments to adults.

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THE ETHICS OF INTERVENTION: ACTING AMIDST AMBIGUITY*

LEON EISENBERG †

Chief of Psychiatry, Massachusetts General Hospital,
Professor of Psychiatry, Harvard Medical School, Boston, Massachusetts, U.S.A.

IT IS AN HONOR of no small moment to present the Emanuel Miller Memorial Lecture to this distinguished Association. It is, for me, an especial occasion because Professor Miller was a man I greatly admired. Although he was known to me through his writings, we met first when he visited The Johns Hopkins Hospital in February 1960. It was as though I were touching history, not only through the man who had founded the first Child Guidance Clinic in Britain, but one who had taken his tripos from Lord Russell and Sir Charles Sherrington and had been a pupil of Henry Head and Babinski. He gave us a splendid seminar on "The Semantic Problems of the Classification of Child Disorders". His wisdom and erudition were equalled only by the aesthetic sensibility evident in his quiet comment to me on how much my wife Carola put him in mind of a Spanish beauty painted by Goya. That visit led me to Betty Miller's splendid biography of Robert Browning. Two years later, I was privileged to spend an afternoon with Professor Miller at Lincoln's Inn Fields and then to take tea with the Millers at Marylebone. His wife was by then already suffering from the relentless neurologic disease that was to take her life. I was deeply moved by his exquisite sensitivity to her needs. We were to know each other further only through correspondence. His death left me, as it left all of us, diminished. But death can not take away the great good fortune of having known a man whose singular virtues inspire emulation as much as they defy attainment.

I have chosen my topic, "The Ethics of Intervention", in memory of Emanuel Miller's abiding preoccupation with humanistic values. Pretending to have no profound revelations to offer, I have subtitled this address "Acting Amidst Ambiguity" in confession both of the insufficiency of information on which clinical decisions must be taken and of the frailty of the judgement we can, any of us, bring to bear on the human problems we face. If I make repeated reference to medical tradition, I would not have you take this as disparaging the role or responsibility of the allied child care professions. I can speak best of what I have learned from my own painful encounters with distress and despair in medical practice. I am persuaded that, despite the differences between us in ascribed and instrumental status, the principles that inform humane clinical behavior are our common heritage.

*The Third Emanuel Miller Memorial Lecture delivered 12 June 1974, to The Association for Child Psychology and Psychiatry.

†Dr. Eisenberg is currently Senior Associate in Psychiatry, Children's Hospital Medical Center, Boston Massachusetts, U.S.A.

It is, however, not only the occasion of this lectureship that has inspired my choice of topic. These very issues occupy stage center in public discussion. Inadequate health care, long regarded as a regrettable misfortune, has been redefined as an injustice subject to political action (Freedman, 1974). Moreover, the very power of modern medical methods has transformed the physician from a sympathetic companion (witness Sir Luke Fildes' Victorian portrait of "The Doctor" at the bedside of the sick child) to the keeper of the portals of life and death. This is no fanciful image; cardiopulmonary assist, central venous feeding lines, renal dialysis and the like enable the hospital staff to maintain a vegetative, if not a human, existence for the moribund patient. When there was no more the doctor could do than comfort the dying patient and his family, there were few ethical dilemmas for him. Once it became possible for him to delay death's dominion, he began to face the awful necessity of deciding how long life, and with it suffering, is to continue. Confronted with an infant with multiple congenital anomalies who would die in the absence of intervention and given the technology to repair, though only in part, nature's errors, he cannot escape the responsibility of a godlike role (Shaw, 1973; Duff and Campbell, 1973). Unlike the philosopher or theologian who can compose learned theses in the comfort of a book-lined study and defer conclusion while he balances angels on the head of a pin, the physician cannot await divine revelation. In the slogan of the French students in May 1968, *not to decide is to decide*. Responsibility is inescapable for the health professions.

Adding to the doctor's dilemma is the need for long-term follow up before the full consequences of his interventions become evident. Laurence (1974) in his comparison of the results of previous and present methods for the care of patients with spina bifida, notes that survivorship has increased from 17 to 50 per cent. Surely, this must be considered a happy discovery. Look again. The number of functional survivors out of each hundred has increased from 8 to 15 whereas the number of paralyzed, doubly incontinent and severely defective children has increased from 5 to 27. Thus, for each seven additional children in a birth cohort of 100 whom we are now able to offer a relatively normal life, we produce 22 more severely handicapped survivors. Applying these statistics to the U.S. with 3,140,000 births in 1973, we would condemn some 1700 additional families to the bitter, painful experience of living with or placing out a severely handicapped child. The pediatrician in attendance for such a newborn must decide whether two times the number of relatively healthy survivors justifies five times as many severely crippled children. If the first principle of medicine is to do no harm, what stand shall he take (Hunt, 1973; Lorber, 1974)?

I, for one, do not suggest that the individual physician preempt the decision. Parents, fully apprised of the alternatives and their probable consequences, consultants, nurses and social workers experienced in the problems of long-term care should participate as full partners. However, at the crucial final point, the responsible physician will have to decide for himself what he is prepared to do, all opinions having been heard. The banality of evil lies precisely in executing acts legitimated by official authority, without having examined one's personal responsibility for their morality. Just as the physician should refuse to terminate a life, following the behest of a family wishing to be rid of an unwelcome member, he or she is equally obligated

to weigh the ethical issues before acting as an agent to prolong it. The physician cannot arrogate final authority to himself; where disagreement exists, he must inform the family of its options to seek care elsewhere.

You are, of course, aware that the medical situation in spina bifida permits of more alternatives than I have thus far considered. The use of prognostic indicators may permit greater discrimination of potential outcomes before intervention, although they remain so crude and imprecise at present as not to alter substantially the dilemmas I have posed. When other instances of spinal or cranial dysraphism are known to have occurred in the family, amniocentesis of the pregnant mother to ascertain elevated levels of alpha fetoprotein (or even blood tests on the mother) may serve to justify therapeutic abortion; at best, this preventive measure is only applicable to a minority of cases; most occur without familial precursors (*Lancet*, 1974). Perhaps I move too fast. Some may be unprepared to gloss over abortion and may object to its gilding by the adjective "therapeutic". They may advance the familiar thesis that once we allow an unborn life to be terminated, we are on the "slippery slope" (Etzioni, 1974) that will inevitably lead to enforced euthanasia for undesirables. This argument, if it is consistently applied backward as well as forward in time, must bar contraception, by any method, as the first misstep on the slide to perdition. This version of moral absolutism—with its domino theory of the sequential collapse of moral values—fiercely misrepresents the actuality of social behavior. In your country and in mine, we have been doing legal abortions in large numbers over the past five years without having sanctioned killing live born children. To the contrary, there is a long and blood curdling Western history of infanticide (Langer, 1974), permitted by laws that regarded children as parents' chattels and allowed to occur in church-run charnel houses called Foundling Homes (Kessen, 1965) at the very same time that church dogma and secular law vigorously condemned contraception and abortion as moral abominations. Further, the legislated sanctimoniousness that was law in the U.S. and the U.K. until a few years ago led directly to substantial death and disability from clandestine abortions. In what perverse way can what existed before be considered "moral" and what we have moved to now "immoral"? The slippery slope theory supposes an analogy between society and the alcoholic who, once he takes the first drink, cannot refrain from the second and the third. Whether or not that suffices to characterize the inner life of the moral absolutist, I refuse to permit him to project his personal psychodynamics of "ethicoholism" onto the rest of mankind. I find no difficulty in distinguishing between aborting a fetus with Tay-Sachs disease and napalming Vietnamese children. The right to life advocates, for all their clamor on behalf of the products of conception while they are *in utero*, have been deafeningly silent on the fate of children once they have been born.

In ordinary clinical practice, the task for the physician faced by a patient seeking his assistance is that of weighing the risks of diagnosis and treatment against the benefits they are likely to confer (White, 1973). The presenting complaints, the information gathered by a thoughtful history and the data revealed by a physical examination will serve to identify likely biological disorders. Most complaints brought to the office warrant no more than symptomatic treatment despite the outside chance that minor complaints may be the earliest manifestation of serious

illness. The initiation of the "complete workup" carries with it not only fiscal consequences, but hazards from the procedures themselves and from the induction of considerable anxiety in the patient. The patient's failure to respond to simple remedies and the appearance of additional clues to a disease process riskier than its investigation and treatment will clarify the need for carrying the matter further. Too often physicians are tempted into unduly elaborate procedures mostly to spare themselves the embarrassment of looking foolish to colleagues, should they have failed to discern the obscure and the rare. Or worse, they may put the patient at hazard to satisfy mere intellectual curiosity in establishing the existence of a condition for which there is no treatment. I recall with chagrin my own behavior as an intern. I had admitted a patient with severe jaundice and an enlarged liver. More experienced hands than mine palpated what were thought to be metastases from a primary carcinoma in the pancreas. It was my task to persuade the patient to give permission for an exploratory laparotomy. He refused and signed out of the hospital. His wisdom was evident when he returned to the Out-Patient Clinic six weeks later, no longer jaundiced and with his liver back to near-normal size. He was alive and well, despite, not because of, me; suffering from hepatitis, he might not have survived the surgery proposed to "make the diagnosis". That diagnosis, had it been correct, would have brought no benefit to him—and little enough to us, for we had only to wait to establish it. Somehow, we had fallen into the trap of perverting patient care in the name of teaching and learning. Unless meeting the patient's needs is the primary maxim, what is taught and what is learned can only be bad medicine. Doctoring is not a game.

Examples from other fields of medicine may be more dramatic but the ethical issues for mental health professionals do not differ in kind. Alike, they concern the quality of life; in our field the questions are headlined under the banner: behavior control. They are sharpened in precisely the same way by the existence of potent methods of intervention: drugs, custody, computerized record keeping, behavior therapy as well as by the more conventional psychotherapeutic techniques whose potency and potential for harm have been given insufficient weight. It is the existence of choices that make a difference that heightens ethical responsibility. Advice without consequences poses no dilemmas.

With phenothiazines, it is now possible to abort most acute episodes of schizophrenia and mania (Klerman, 1974). With tricyclics and MAO inhibitors, we can terminate most depressions; electroshock offers benefit to most of the residual cases (Detre and Jarecki, 1971). Maintenance therapy, especially for the affective disorders, has been shown to reduce the risk of recurrence for subsequent episodes of psychosis (Baastrup *et al.*, 1970; Prien *et al.*, 1973). Differential diagnosis becomes more than an academic exercise when outcome is contingent on the relative specificity of treatment methods. When we knew little and could do little, polemics against pigeonholing patients in rigid schemes of classification and arguments that the symbolic meaning of psychotic behavior proved its psychosocial origins had some claim to legitimacy. With the evidence we now have, they are no longer credible in clinical practice. Benefit must still be weighed against risk, the risk of drug toxicity, the risk of the social consequences from an invidious label which, once attached, is not easily shed, the risk of the misapplication of drug treatment *as well as*

the risk of *not* applying a treatment while symptoms flourish (Baldessarini and Lipinski, 1973). Society has learned, at great cost, how debilitating prolonged hospitalization can be by superimposing onto the patient's initial disorder a syndrome of social breakdown more pervasive than the dysfunction that brought him to medical attention (Gruenberg, 1967).

With the range of treatments available, it is no longer tolerable to have "schools" of exclusive salvationism whose practitioners fit all comers onto a Procrustean couch, whatever their disorder. It has become unethical to deny relief to a patient with a profound depression because of an anachronistic bias that a drug cure is inferior to a talking cure, at a time when the former has been shown to be effective and the latter not. The argument is as strong for the failure to use appropriate medication for an acute schizophrenic. Yet both practices persist among duly certified psychiatrists. The use of drugs is not in contradiction to, nor a substitute for, respectful listening and judicious confrontation of psychic conflicts. The psychopharmacologist must be no less sensitive to personal and family dynamics than the psychotherapist if he is to be fully effective; his patient remains a person with problems in living, even if he recognizes him as suffering from a neuropsychiatric syndrome with important biological roots (Eisenberg, 1973).

No drug comes free of charge; each carries toxic hazards, usually in direct proportion to its potency. This truism, long recognized in pharmacology, is but a specific instance of a general law that applies to all interventions: the more powerful the change agent, the riskier its application. The psychotherapist who comforts himself in the belief that, at the least he does no harm, even if he cannot always establish that he does good, deludes himself no less than he does his patient. The very act of consulting a specialist about one's mental state makes the relationship between the doctor and the patient or the social worker and the client inherently asymmetrical. A somatic symptom implies only a malfunction in a body organ; what is uniquely you remains intact; a mental symptom strikes doubts at the integrity of the self. Some years ago, the *New Yorker* published a cartoon of a patient about to leave a doctor's office, as the physician warmly shook his hand. The caption read "Congratulations, Mr. Jones. It's all in your body!" If the patient begins by acknowledging that he is uncertain of the clarity of his mind, with what instrument of thought does he challenge the opinion of the ascribed expert? Obviously, and fortunately, clients do question that authority, refuse advice and leave treatment disgruntled. They are, however, at a systematic disadvantage in the encounter, a disadvantage that may be enhanced by unwarranted actions and statements by the nominal expert. Dependency can be fostered rather than diminished. Pseudo-answers can be provided rather than personal growth fostered. The therapist is not, never was, and can never be a precisely machined plane mirror reflecting true. He or she is convex or concave, refracting the patient's image back through optics determined by the therapist's personality, culture and training.

The decision to seek medical consultation is a request for interpretation. Something is awry, the patient reports; what does it mean, he asks. In the biological tradition, the physician explains the loss of appetite, fever, fatigue and jaundice by the diagnosis of hepatitis, a viral infection of the liver, which he is able to confirm by independent laboratory tests. The patient is reassured; it's nothing he's done;

it isn't cancer; he's given a regimen to follow and a course of illness to expect. What if the complainant reports inexplicable episodes of acute anxiety, an inability to work effectively and a vague sense of dissatisfaction with his life? In his case, naming does not imply a pathogenesis that is independently verifiable; moreover, it's he or she, his or her behavior, that is at fault. In the psychosocial tradition, patient and therapist embark on a quest for meaning, in which the process is shaped by the degree to which the patient can come to accept the proffered explanatory system. If the therapist is a Puerto Rican spiritist, the source of the patient's distress may be posited as *spiritos intranquilos* (intranquil spirits) inhabiting his home or *envidia* (envy) by neighbors; the specific remedy is provided through the invocation of benign spiritual influences, by purification rites, sacrificial candles and group seances (Harwood, 1974). If consultee and consultant share a common set of cultural values, the ritual is consummated and the evil, usually, exorcised. To those of us in the Western European tradition, this is often dismissed as symptom removal by suggestion or transference; in short, as irrational. But is it any more "irrational" than what takes place in the approved psychotherapies?

Patients in Jungian analysis came to dream Jungian dreams, in Freudian analysis, Freudian dreams, and my patients, few dreams at all. How is this wonder to be explained? We now know that all of us spend some 20 per cent of our sleep time in dreaming; we differ in the number we recall and in those we choose to report. Further, it is an old observation that the day's events influence dream content. If I fail to reward my patients' dream reports with avid interest and turn instead to other matters, they discuss those matters I, the guide on this psychic safari, signify are important. If I guide them to a search for a meaning of their distress in the psychological epiphenomena that accompany rapid eye movement sleep, they and I cooperate in substituting new metaphors, whether archetypal urges or Oedipal complexes, in their dream content. The appearance of these symbolic manifestations establishes only the interpersonal influenceability of human behavior, not the "correctness" of my interpretations, although it is tempting to take them as such. We are together reconstructing the meaning of events in a shared mythopoesis. The effort to find meaning in a life is a philosophical undertaking whose logic and consistency provide the talisman for truth, not its objective verification. Once things fall in place, once experience and interpretation appear to coincide, once the patient has a coherent "explanation" that leaves him no longer feeling the victim of the inexplicable and uncontrollable, the evil symptoms are, usually, exorcised.

Although therapeutic benefit may be entirely independent of the theory of psychogenesis favored by the psychotherapist, all explanations are not necessarily of equal validity. Rather, they may be equally *invalid*; the success of the process is more likely to be a function of the quality of the interpersonal encounter and the fit between culture and practice (Frank, 1973). I remain enough of a committed rationalist to believe in the importance of the search for the ingredients key to its success. I am not, however, persuaded that the observation that the patient produces "material" consonant with therapist expectations proves any more than the exquisite sensitivity of human beings to one another. Since I am convinced that ideas *do* matter, I have introduced this somewhat lengthy discussion to emphasize that the psychotherapist's impact on his or her patient is nontrivial. Our influence penetrates

to the essence of his being. The patient will now make his way among the people and the events in his life sphere with his newly altered *Weltanschauung*. Substitution of myths, no less than the exchange of truths, is a serious business. As with the psychopharmacologist, the psychotherapist must be informed by an ethical concern for the propriety of his interventions.

Some behavior therapists consider themselves happily exempt from these strictures. Their theory is operationally definable and embodies remarkably few intervening variables, none, so they argue, that invoke ideas inside the head. They treat only those who seek modification of their behavior and merely supply the technology to change it in the requested direction. But is that really so? If a homosexual desires to alter his orientation, it is contended that there is no value judgement involved in employing aversive conditioning to accomplish what he asks, his reasons for so doing being his own. Not quite so fast. Would the behaviorist employ his methods to treat a heterosexual who sought conversion to homosexuality or would he not suspect more pervasive psychopathology? I do not propose to debate whether homosexuality *per se*, or homosexuality that results in intrapsychic conflict, is a psychiatric disorder but only to insist that the decision to *treat* implies a judgement that the patient in some sense suffers from a dysfunction that it is ethical to attempt to cure. I trust that none of us, of whatever persuasion, would undertake to treat a bank robber for the complaint of on-the-job anxiety. Are not similar, if less extreme, ethical problems posed by decisions as to who in the family is the patient, as to which behaviors are personally maladaptive and which an appropriate response to a malfunctioning society?

The veritable explosion of encounter, group and live-in treatments pose similar questions of values. Is "letting it all hang out" therapeutic and, if so, for whom and under what circumstances? The much vaunted "therapeutic milieu" boasts an egalitarian social structure in which, it is claimed, all are equal; therefore, there is, we are told, no conflict of values because the system is democratic and the patients determine their own future. Closer examination invalidates this claim. Some are more equal than others. Successful therapeutic "communities" are sustained by the charisma of their leaders; groups, unless checked by professional awareness of the danger of uncontrolled aggression and scapegoating, can be extraordinarily coercive. The vulnerable patient can be devastated by group pressures for premature revelation of his inner secrets. The encounter, nude or clothed, does heighten emotion and does simulate the closeness to others sought by its devotees. Dare I point out that there is, as yet, not a scintilla of evidence (Back, 1972; Yalom and Lieberman, 1972) for the creation of durable relations or lasting effects, other than for that minority, fortunately, of members who become addicted to encounters and substitute compulsive attending at ever more far out group orgies for previous (and usually less deviant) life styles? What shall it profit the man—or woman—to give up symptoms for a precarious psychic equilibrium maintainable only by the constant reinforcement provided by living out a life in a "community" which is "therapeutic" only by some bizarre definition?

The foregoing comments are but footnotes to the problems posed by involuntary commitment to a mental institution. Commitment can be abused; revelations from the U.S.S.R. indicate just how systematically this can be done in the name of

maintaining public order. A movement of legal reform, enjoying wide popular support in the U.S., has restricted the use of commitment to patients judged to be homicidal or suicidal. This narrow definition, literally applied, leaves the family, the physician and the community powerless to act on behalf of grossly psychotic patients, unless they violate public law for which they can be brought to court and jailed or hospitalized. Thus, we have reintroduced the legal apparatus after a century of struggle to treat psychosis as an illness rather than a crime, all in the name of the rights of the mentally ill. One need not support the unduly wide latitude given physicians under earlier regulations in order to decry the unwise aspects of their revision in such narrowly restrictive terms. In the U.S., we have had court rulings that, having agreed to a patient's involuntary commitment, have upheld her right to refuse treatment, thus granting her the worst of both worlds. The law has now incorporated into its formulations a growing public indifference to the fate of others.

We are told by the advocates of this movement that the freedom of patients is being protected, but a strange freedom it is: to be sick, wretched and neglected. The law and the apparatus of the courts are relatively effective in stopping unwanted treatment from being forced upon a reluctant patient but they are ill-equipped to guarantee that needed treatments will be supplied. The court may spare the individual from *furor therapeuticus* but it does so at the cost of complicating and delaying the process of care when it is indicated and welcome. Current legislation in Massachusetts not only enjoins research with psychotropic drugs on school children but mandates that the Commissioner of Public Health must approve school administration of such medications when prescribed by the child's physician. Tragically caught by the broadness of the law's definitions are epileptic children because barbiturates have been labeled "psychotropic". Let us agree that some school children are unwisely put on drugs. Who speaks for the legions of others who get no care at all in despite of distressing and disturbing behavior? My experience as a child psychiatrist has impressed on me the enormity of the unmet needs that should be the principal focus of those concerned with the rights of children, central to which is the right to care, not the "right" to be disturbed. When stated by a psychiatrist, this concern is all too often misread as self-interest: the desire of the professional to retain his prerogatives. To the contrary, by present law the psychiatrist's role is simplified; he is enjoined from action—and hence responsibility—when the patient or his family refuses the therapeutic plan. His position is better than Pontius Pilate's; his hands are washed for him. He suffers no lack of clients; his is a seller's market; the voluntary consumers are a much more agreeable lot. The net result is to be seen in the tens of thousands of administratively discharged patients who pass their days in single room occupancy units, welfare hotels and proprietary nursing homes, often with less care and less human contact than was their lot in the deservedly criticized state hospital.

With full recognition of the limits on the benevolence and wisdom of physicians, I am not at all sure that these commodities are likely to be found in greater proportion in adversary proceedings before the court. Family and physician can quietly agree on the unwisdom of prolonging life when meaningful existence is no longer possible. What rule of law will permit the court to decide that a life should be ended?

Treatment decisions made outside the courtroom may be, on balance, a better mode of solution than explicit legal mechanisms for their resolution.

When we deal with children, our dilemmas are multiplied. Usually, it is not the child but his parents who initiate the complaint although, most often, he shares in the general distress. We stand in some danger of becoming their agents against his interest because they make the contract for service. The evaluation process is designed to guard against this perversion by introducing a balanced assessment of the child's behavior against developmental norms in relation to cultural and social class expectations. Nor can we refuse involvement simply in deference to the child's reluctance to participate, in view of the limitations on his capacity to make a reasoned choice, limitations that vary with his maturity. We are obligated to act on his behalf, within the constraints set by his family and by the authority society has conferred on us. When family wishes, social expectations and the child's best interests coincide, therapeutic intervention is hampered only by the extent to which the state of the art and our individual skills fall short of what is needed.

Far too often, we recognize what should be done but lack the social means to attain the special classroom, the day care center, the family income, the better housing; in short, the conditions for promoting growth. At times, we confront a family that does not understand the need for treatment or, worse, is unable or unwilling to cooperate with it because their own pathology preempts their energies. Courts will intervene when the physical safety of the child is at risk because of gross abuse but they—and we—are reluctant to act when psychological abuse is at stake. All of us engage in a juggling act, attempting to balance the dangers of inaction for the individual patient against the serious consequences for society of a too ready interference with the rights of parents. Given the uncertainty of our predictive powers, the centrality of the family as the traditional mode for child rearing and the inadequacies of present provisions for alternate child care, we may have no better short run choice although it inevitably does result in the abandonment of some children to a future of misery.

The ethical dilemmas in out-patient clinics for children in their families pale in comparison to the challenge of creating a support structure for children under the custody of social agencies. Let us grant that in our two countries at present the family is potentially the most effective social institution for rearing healthy children. From this it follows that the defense of the family is the first line of defense for the child. Income maintenance, homemaker services, adequate housing and marital counselling to preserve family integrity are the preconditions for child development (Eisenberg, 1974). Included in those services must be universal accessibility for family planning and abortion; not infrequently, it is the unwanted child or the additional child who detonates family disintegration as well as becoming its principal victim. With half the mothers with children between the ages of 6 and 17 in the U.S. work force, good day care and after school services are essential if children are to be guaranteed stimulating environments in which to grow. The gradual disappearance of the extended family and the growing isolation of children into narrow age groups demands new social measures, at school and at work, to reintroduce those essential interactions with juniors and seniors as well as peers that traditional societies automatically provided. The elderly can rediscover their personal usefulness

by the social reinvention of grandparenthood. I could not wish a greater bonus for today's children than that they should share the warmly remembered, gratuitous and undemanding love with which my favorite grandmother enveloped my early years.

Withal, there will be families which cannot be maintained, mothers and fathers who do not want and cannot care for their children. In the U.S., well over a quarter of a million children are now in what is euphemistically called "foster care". In a minority of instances, it is, as labelled, temporary, an appropriate stop-gap during parental illness or family disaster. For most, it is a state of limbo that will continue to the age of majority. Agencies and courts maintain the fiction of temporariness in deference to the "rights" of parents who, though they visit infrequently or not at all, continue the pretence of parental concern and refuse to permit adoption because of the narcissistic injury represented by open admission of their disinterest in, or incapacity for, parenthood. It is morally indefensible that mental health professionals should tolerate the perpetuation of this farce (Eisenberg, 1962). It is our unequivocal responsibility to fight for the changes in law and in agency practices necessary to enable a rapid determination of the family beyond repair in order that the abandoned child be declared eligible for adoption. The conspiracy of silence that defines foster care as "temporary" inhibits the foster family from fully investing its affections in a child who may be summarily removed from their home at the whim of agency workers; it stunts for the child the development of that security in being wanted that is the condition for his flowering. It exists primarily because of a preoccupation with the legal rights of biological parents to the detriment of their offspring, a heritage from the time when children were regarded in law as mere chattels (Goldstein *et al.*, 1973).

Such decisions will—and should—require adjudication by the courts, but these must be made prompt as well as fair. A matter of fiscal equity may endure a lengthy legal process with no irreparable damage to plaintiff or defendant, but the life of the child cannot be put into suspended animation while every channel of appeal is exhausted. The harm that may result from the occasional unwise decision has to be set against the serious damage now produced by the paralysis of action that afflicts the hundreds of thousands who never have their interests protected by the court. Further, there are many foster families who would prefer to adopt, were the child free, but are unable to do so because the initiation of the action may lead the supervising agency to remove the child because their attachment to him is "too close". It is hard to imagine a greater distortion of professional judgement when the very need of the child is for the reality, not the simulacrum, of a devoted family. Others wish to adopt, might receive a sympathetic hearing, but lack the resources to accept full financial responsibility for the child. Here the remedy lies in state-subsidized adoption, no revolutionary innovation since tax law already recognizes the legitimacy of income transfer when dependency is involved. Given a time when growing numbers of young people recognize the dangers of population pressures, have decided not to give birth and yet desire the pleasure of parenthood, liberalized adoption practices offer bilateral benefits to individuals and to society.

Some will be frightened by the prospect I hold before them. It is a heavy matter to terminate a tie; parents can and do change. It puts upon us a responsibility we

may aver we have not the wisdom to assume. I recall to you my earlier warning: not to decide is to decide. Inaction is action when it perpetuates uncertainty and alienation for infants and children. I insist that we recognize and accept fully the responsibility for what we are *not* doing as well as for what I propose that we do. It is not in the nature of things that matters stand where they do in foster care; it is in the nature of us, of our professional practices and of the legal conventions that we allow to govern our society. No one will speak for children if we do not speak for them. The final decision will not be ours alone, but ours is a calling that demands that we become advocates for children by forcing into view the misfortunes that our society has permitted to be visited upon them (Eisenberg, 1972b).

To live is to decide. Each of us makes himself or herself in the process of the decisions, small and large, by which we declare or deny our humanity (Eisenberg, 1972a). The process of trying to help a patient or a client is at the same time the process by which we define our own essence as human beings.

I can think of no better way of memorializing the wisdom and the Talmudic scholarship of Emanuel Miller than by closing with a quotation from "Fathers", a tractate of the Mishnah which records three questions the sage Hillel addressed to mankind: "If I am not for myself, who is for me? And if I am for myself (alone), what am I? And if not now, when?" His words serve to remind us that if we are to improve our human condition, we must act for ourselves; that if we are to achieve full humanity, we must regard others as not less than ourselves; and that, life being short and art long, we cannot await final answers but must act upon the best of what we know; time lost is beyond recapture. This I take to be the ethics of intervention, the guidelines for acting amidst ambiguity, the heritage of Emanuel Miller.

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CHILDREN OF WEST INDIAN IMMIGRANTS—III. HOME CIRCUMSTANCES AND FAMILY PATTERNS

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INTRODUCTION

THERE IS NOW an extensive literature on patterns of family life in the West Indies (Clarke, 1957; Henriques, 1968; Kerr, 1952; Lowenthal, 1972; Patterson, 1963; Smith, 1962) which makes it clear that there are many differences from the various accustomed modes of family life in the United Kingdom (Young and Wilmott, 1957; Anderson, 1971; Klein, 1965). The illegitimacy rate is as high as 70 per cent in Jamaica (although lower on other islands) and the family tends to depend on the mother and her kin rather than on a husband-wife unit. In many families the grandmother is the head of the family unit. Although marriage is generally held to be the ideal, economic reasons lead many poor people to delay marriage until late. Because of the instability of many unions during the early years of child bearing, the role of the father is often weak and children frequently live with a variety of relatives during their life. Of course, there is considerable variety in family patterns in the West Indies, according to the stage of life, to the type of socio-cultural setting, to income level, to the island lived in and to other factors, but it is the case that the nuclear family which is the norm in the U.K. is much less so in the West Indies.

Patterns of child-rearing also appear to differ from those in Britain, in so far as they are known (Newson and Newson, 1963, 1968). Young children in the West Indies are fed on demand and there is little emphasis on toilet training. On the other hand, children are expected to be obedient and help about the house, children's play is not considered important, and there is a good deal of control of the children's activities with discipline strongly enforced. Education is highly valued but there is often an emphasis on rote learning and a lack of appreciation of the conditions necessary for intellectual growth.

These, and other, differences have led to a concern about the possible problems stemming from such marked differences in family life in what is the largest group of new immigrants to this country in recent times. Recent studies of West Indian families living in the U.K. with pre-school children (Hood *et al.*, 1970; Pollack, 1972) together with Patterson's study in the 1950's of West Indian families in London (Patterson, 1963) have suggested that many changes in family patterns take place in association with migration to Britain so that it would be unwise to make a direct

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translation of the findings from investigations in the West Indies to the situation of West Indian families in this country.

Little is known about West Indian families in this country with older children. In an attempt to provide information on this group a systematic study was made of West Indian families with 10-yr-old children, as part of a wider investigation into families with children in this age group living in an inner London borough. Previous papers have reported findings on the children's behaviour (Rutter *et al.*, 1974b) and educational attainments (Yule *et al.*, 1974). The present paper considers the home circumstances and patterns of family life as compared with those of non-immigrant families.

METHOD

Questionnaires and group tests were applied to the total population of 10-yr-old children attending local authority schools in one inner London borough (or who lived in the borough and attended special schools elsewhere with LEA support), who were just about to start their final year of junior schooling (Rutter *et al.*, 1974a; Yule *et al.*, 1974). As part of this survey, teachers were asked to give the place of birth of the children's parents. By checking this information against parental reports it was found accurate in 97.5 per cent of cases (Rutter *et al.*, 1974b) and hence was sufficiently reliable for use in further sampling. On the basis of this information from teachers, 58 children from families in which both parents were born in the West Indies and 106 children from non-immigrant families* were chosen by means of random selection for more intensive study.

Two-thirds of the West Indian families (33 out of the 51 known in the random sample) came from Jamaica, with only a third from one or other of the smaller islands. It should be noted that this is different from the situation previously reported in North London (Hood *et al.*, 1970) or in Birmingham (Rex and Moore, 1968; Lambert, 1970).

As part of this more intensive study, the parents were interviewed at home by experienced interviewers using a previously described and tested interview of known reliability (Brown and Rutter, 1966; Rutter and Brown, 1966), which lasted approximately 2 hr. The refusal rate was below 10 per cent so that altogether 54 parents in West Indian families and 97 parents in non-immigrant families were interviewed. Wherever possible the mother was seen on her own, but in 15.1 per cent of West Indian cases the section of the interview on household composition, employment and child symptoms was with both parents together and in 3.8 per cent a father or grandmother constituted the main informant. The comparable figures for non-immigrant families were 21.6 and 1 per cent respectively. On the latter section of the interview (parental health, household tasks, help from kin and the marital relationship) a slightly higher proportion of the interviews (for both West Indian and non-immigrant families) were with both parents together. In addition, a much shorter interview was held with fathers who also completed a short health questionnaire. The refusal (or failure to contact) rate was markedly higher in the case of fathers,

*Defined in terms of both parents born in the British Isles or one parent born in Britain and the other born in the European mainland, U.S.A., Canada, Australia or New Zealand.

being 53.8 per cent in the West Indian families and 26.8 per cent in the non-immigrant families in which a father was part of the nuclear family.

The interviews were standardised in approach (Richardson *et al.*, 1965) but (with a very few exceptions) did not use a questionnaire with specified wording. All the interviewers had had at least 3 months closely supervised training and most had been using a similar interview over a period of several years in previous studies. Particular emphasis was placed on obtaining rapport and cooperation, on setting the informant at ease, and in using his terminology whenever possible. The interviews were audio tape-recorded and were coded during and immediately after the interview, with recourse to the tapes whenever necessary to decide on the correct coding or rating.

With the non-immigrant families the interviewers were all "white", University graduates with training in sociology, anthropology or psychiatry, brought up in Britain, and with considerable experience of working and interviewing families at home in the borough. Two-thirds of the West Indian families were seen by the same group of interviewers and one-third by "black" graduates with training in law, brought up in the West Indies, who had lived in London for several years, and who had had special training in the interview methods and the concepts employed. For both groups, this involved their listening to tapes and discussing codings, sitting in on other people's interviews, having their own interviews sat in on, discussions of interview methods and of social studies, together with a checking of all interview schedules and of all codings by another interviewer.

For data on events, happenings, activities and home circumstances we relied on a detailed and flexible cross questioning about recent events or current circumstances. Codings were firmly structured and quantitative and most consisted of some form of frequency count. There were detailed instructions on the information to be obtained, the interviewer had to focus on specified items in the schedule, he had to cover all the items listed and he had to question about a specified period of time. Although the information he obtained was structured, the way in which it was obtained was, within certain specified limits, left to the interviewer's judgement.

Our approach to the measurement of emotions and attitudes was different, in that inconsistencies and ambivalence are an intrinsic part of emotional states and not merely methodological difficulties to be eliminated. The interview was used as a standard stimulus to elicit affect and feelings and from the onset it was made clear to the informants that we were interested in feelings just as much as precise factual material. In the recognition of emotions and feelings, tone of voice, facial expression and gesture were given more emphasis than the words used. Fuller accounts of the interview methods are given in Brown and Rutter (1966) and Rutter and Brown (1966).

RESULTS

(a) *Employment*

The occupation of the main breadwinner (usually the father) was coded according to the Registrar-General's classification of occupations (1966). For this purpose the social class III was split into "non-manual" and "manual". Scarcely any of the West Indian fathers had a non-manual occupation (only 3.8 per cent) compared

with a fifth of the non-immigrant families. Conversely, in half the West Indian families the main breadwinner had an unskilled or semi-skilled job compared with just less than a quarter of the non-immigrant families. However, the West Indian fathers had changed job less frequently than the non-immigrant fathers. Twenty-five per cent of the latter had had 3 or more jobs in the past 5 yr compared with 14.3 per cent of the West Indians.

TABLE 1. EMPLOYMENT

	W.I. Families	Non-immigrant Families
(a) Occupation of main bread-winner		
Non-manual	2 (3.8%)	19 (20.0%)
Skilled manual	25 (47.1%)	54 (56.9%)
Semi/unskilled manual	26 (49.1%)	22 (23.2%)
	—	—
Total known	53	95
***Linear trend significant $p < 0.001$		
(b) Occupation of mother (when she has job outside the home)		
Non-manual	5 (11.4%)	17 (33.3%)
Skilled manual	5 (11.4%)	6 (11.8%)
Semi/unskilled manual	34 (77.2%)	28 (54.9%)
	—	—
Total known	44	51
Linear trend significant $p < 0.01$		
(c) Employment of fathers		
Mean work index	64.9	66.7
Works 2½ hr + per evening	2.3%	8%
Works 10 hr + at weekend	11.6%	17%
Any night work	20.5%	17%
(d) Employment of wives		
Wives with no jobs outside the home	20.8%	46.9% **
Mean work index working wives	47.3	30.1
Works 2½ hr + per evening	15.1%	4.2% *
Works 5 hr + at weekend	13.2%	2.4% **
* $p < 0.05$		
** $p < 0.01$		
(e) Further education		
Father with training after leaving school	21.4%	29.2%
Father with school examination qualification ("O" level, "A" level and the like)	13.9%	10.7%
Mother with training after leaving school	10%	14%
Mother with school examination qualifications	16%	6.5%

We obtained detailed information for both fathers and mothers on the number of working hours they spent outside the household in the previous 3 months. This included time taken travelling to and from work as well as the time at work itself. Several indices of employment were computed from this information. The overall work index is the total number of working hours in 3 months, divided by 10. The mean figures for fathers given in Table 1 are therefore equivalent to about 50 working hr per week. The other indices were devised to give some indication of the extent to which the work pattern influenced aspects of family life, such as by keeping

parents away from home during the evening period when the children were likely to be there.

The night index measured the number of hours worked from 9 P.M. to 5 A.M. each week in the total period. The evening index referred to the hours spent in work between 5 and 9 P.M. Monday–Friday and the weekend index was calculated as the total number of hours spent working between 5 A.M. and 9 P.M. on Saturdays and Sundays.

There were few differences between the two groups of fathers in their pattern of employment. However, non-immigrant fathers tended to work slightly longer hours in the evening and at weekends. Eight per cent of them worked an average of over $2\frac{1}{2}$ hr per evening compared with only 2 per cent of West Indian fathers, and 17 per cent worked over 10 hr at the weekend compared to 12 per cent of West Indians.

The picture for mothers was very different, only a fifth of the West Indian mothers had no job outside the home compared to almost half of the non-immigrant mothers. In addition, amongst the women who did have jobs, the West Indians worked far longer hours. Fifteen per cent worked an average of over $2\frac{1}{2}$ hr per evening (a higher proportion than both groups of fathers) compared to only 4 per cent of non-immigrant mothers. As with the fathers, few of the West Indian mothers had a non-manual job (the difference from the non-immigrant group being statistically significant at the 5 per cent level).

The main difference between the two groups of families with regard to further education is that twice as many West Indian as non-immigrant mothers had taken some form of school examination. This makes their lower occupational status all the more striking. Of the 10 working mothers with some educational qualifications or further training, half were in unskilled or semi-skilled jobs, compared with only 1 out of the 9 non-immigrant working mothers with educational qualifications or further training.

(b) *Housing*

As might be expected from their lower occupational status, the West Indian families were in many respects living in less satisfactory housing conditions. Overcrowding was more than twice as frequent, and indeed half the families were living in circumstances in which there was at least 1.5 persons (adults or children) per room usable for living, eating or sleeping (i.e. excluding bathroom and lavatory). Two-fifths of the families either did not have or had to share a kitchen, bathroom, lavatory, or running hot water compared with only a sixth of the non-immigrant families. Similarly, only 28 per cent of West Indian families had a telephone and 34 per cent the use of a car compared with 43 per cent and 56 per cent respectively of non-immigrant families. Two-fifths were living in multiple occupancy dwellings (compared to one-fifth of non-immigrant families) and less than a third were in council housing as against two-thirds of non-immigrant families. It was clear from the interviews that when they first came to this country many of the West Indians had to live in the most appalling privately rented accommodation, often at exorbitant rents. To a considerable measure the families were still living in substandard housing which gave rise to family hardship. Nevertheless, in one respect, a major change had taken place during the years following migration. Nearly half the West Indian families

TABLE 2. HOUSING

	W.I. Families No. (%)	Non-immigrant Families No. (%)
(a) Person/room ratio		
1.0 or less	13 (24.1)	47 (49.0)
1.1-1.4	14 (25.9)	30 (31.2)
1.5 or more	27 (50.0)	19 (19.8)
Total known	54	96
*** Linear trend significant $p < 0.001$		
(b) Type of housing		
House: single occupancy	20 (37.1)	29 (30.2)
House: multiple occupancy	23 (42.5)	20 (20.8)
Flat/maisonette	11 (20.4)	47 (49.0)**
Total known	54	96
** $p < 0.01$		
(c) House ownership		
Owners	24 (44.4)	17 (17.7)***
Council rented	16 (29.6)	65 (67.7)***
Privately rented (unfurnished)	5	14
Privately rented (furnished)	9	0
Total known	54	96
*** $p < 0.001$		
(d) Household facilities score		
Maximum	31	81
Less than maximum	23 (42.6)	15 (15.6)***
Total known	54	96
*** $p < 0.001$		
(e) Change of Housing		
Mean number of homes in last 5 yr	1.6	1.5

owned their own home compared with only 18 per cent of the non-immigrant families. To some extent this situation was forced on them through lack of other housing opportunities, and the only way that they could pay the mortgage was through letting out rooms to make for multiple-occupancy housing. Even so, this does not explain the difference. Slightly more of the West Indian families were in single-occupancy houses and 22.2 per cent were living in single occupancy houses that they owned compared with 6.3 per cent of non-immigrant families.

Shortly after immigration many of the families underwent frequent moves of home but this pattern no longer held for the parents of 10-yr-old children. The mean number of homes in the last 5 yr (1.6) was closely similar to that of the non-immigrant families. Marginally more (15.1 vs 6.4 per cent) had had three or more moves in the last 5 yr, but the difference was not statistically significant and this applied only to a small minority of the families.

(c) *Family circumstances*

The age of the parents in the two groups was closely comparable and the mean duration of "marriage" in both cases was over a dozen years. In this connection,

"marriage" was defined in common law terms as regular cohabitation but in most cases there was also legal marriage. There were slightly more West Indian women living on their own with their children (18.5 vs 8.3 per cent) but in both groups the great majority of families were two parent households.

TABLE 3. SOME FAMILY CIRCUMSTANCES

		W.I. Families	Non-immigrant Families
		No. (%)	No. (%)
(a)	Children born to mother		
	1-4	22	76
	5 or more	32 (59.3)	20 (20.8)***
	Total known	54	96
	*** $p < 0.001$		
(b)	Cohabiting status		
	Single parent household	10 (18.5)	8 (8.3)
	Two parent household	44	88
	Total known	54	96
(c)	Separations of child from parents (for 1 month or more)		
	None	18	62
	From father only	4	16
	From mother only	2	1
	From mother and father at different times	3	2
	From both parents at same time	27 (50.0)	16 (16.5)***
	Total known	54	97
	*** $p < 0.001$		
(d)	Child's admission to institution		
	None	34	59
	Hospital only	13	35
	Institution/Foster care	5 (9.6)	3 (3.1)
	Total known	52	97
(e)	Pre-school care		
	Child-minding by non-relatives	21 (39.6)	5 (5.4)***
	*** $p < 0.001$		
(f)	Age of child's parents		
	Mean age mother	37.3 yr	37.6
	Mean age father	40.6 yr	39.7
	Mean duration of marriage	12.6 yr	15.2

However, the two groups of families differed markedly in family size. Nearly three-fifths of the West Indian families had five or more children compared with only one-fifth of the non-immigrant families. Clearly, this was a major factor leading to over-crowding.

The experiences of the children in the West Indian families also differed. Half had been separated from both parents at the same time for at least 4 consecutive weeks compared with only one in 6 of the children from non-immigrant families. Furthermore, 1 in 10 of the children had been in the care of the local authority

with at least 1 consecutive week in a Children's Home or a foster home, compared with only 3 per cent of children from non-immigrant families. The numbers were too small for this difference to be statistically significant, but it probably reflects a real difference as shown by other studies of the high rate of West Indian children in care (Fitzherbert, 1967) and by the figure of 15 per cent in care for those children in West Indian families born in this country (Rutter *et al.*, 1974b). A further difference, and again one that particularly applies to West Indian children born in the U.K. is the very high rate of child minding by non-relatives. Altogether two-fifths of the children in West Indian families had had this experience compared with only one in twenty of the children from non-immigrant families. We obtained no measure of the quality of the care in these child-minding arrangements. It may well have been good in some instances but other studies (Yudkin, 1967) have indicated that there is often a paucity of both play materials and adult supervision.

(d) *Parental deviance and disorder*

There have been a wealth of studies the majority of which have shown high rates of mental disorder in recent adult immigrants (Murphy, 1965). Most of these have concerned individuals from other countries and migration to countries other than Britain, but similar patterns have also been found for West Indians coming to this country (e.g. Tewfik and Okasha, 1965; Hems, 1967; Kiev, 1964; Pinsent, 1963; Bagley, 1971; Gordon, 1965). But, these studies mainly refer to the situation in the few years immediately after migration whereas the parents of the 10-yr-old children in the present study had mostly been living in this country for 10-20 yr. It is not surprising, therefore, to find the pattern of mental disorder quite different. Overall, there were very few differences between the West Indian parents and the non-immigrant parents in their rates of mental disorder as measured in various ways.

TABLE 4. DISORDER AND DEVIANCE IN PARENTS

	W.I. Families (%)	Non-immigrant Families (%)
Mother		
Health questionnaire score of 7 or more	29.8	22.1
Taking regular sedatives/stimulants	15.4	25.8
Psychiatric care in last 5 yr	9.9	4.2
Psychiatric disorder (interview rating)	22.0	34.0
Total known	52	96
Father		
Health questionnaire score of 7 or more	20.8	12.7
Taking regular sedatives/stimulants	4.5	9.0
Psychiatric care in last 5 yr	2.2	7.8
Psychiatric disorder (rating from interview with mother)	4.7	14.9
Police contact	19.0	28.1
Total known	42	87

Both parents completed a health questionnaire or "malaise inventory" which lists a variety of emotional and psychosomatic items, which the person has to mark

as present or absent. The inventory has previously been shown to discriminate well between individuals with and without psychiatric disorder (Rutter, Tizard and Whitmore, 1970; Rutter, Graham and Yule, 1970). A score of 7 or more has been found to be the cut off point with the best discrimination. The two groups did not differ appreciably in their questionnaire scores, but, as in previous studies the women's scores were higher than those of the men. There was little difference between the groups in the proportion of parents who had undergone psychiatric care in the last five years, but the non-immigrant parents were marginally more likely to have taken regular sedatives or stimulants during the preceding twelve months. Psychiatric disorder was assessed from the parental interview in terms of symptoms present over the last three months. The groups did not differ significantly in terms of these ratings but the proportion with psychiatric disorder was somewhat higher in the non-immigrant parents. In keeping with Lamberts' Birmingham figures (1970), somewhat more of the non-immigrant fathers had had contact with the police for some offence. In both groups the majority of these were of a quite minor kind and the groups did not differ significantly with respect to serious offences.

(e) *Marital relationships*

As developed in earlier studies (Brown and Rutter, 1966; Rutter and Brown, 1966), a variety of measures were available on the quality and nature of the parents' marital relationship. An overall rating of the marriage based on multiple discrete measures of warmth, hostility, quarrels, shared activities, dissatisfaction, etc. showed that in both groups about a fifth of the families experienced marked marital difficulties during the three months leading up to the interview. In about one in ten of the families there was a moderate or marked atmosphere of tension and in about the same proportion quarrels (lasting half an hour with shouting or recrimination from

TABLE 5. MARITAL RELATIONSHIPS

	W.I. Families	Non-immigrant Families
Marked marital difficulties (%)	20.9	17.2
Moderate/marked tension in home (%)	10.2	8.7
Wife markedly warm to husband (%)	43.5	56.2
Quarrels at least weekly (%)	8.9	11.9
Mean dissatisfaction score (wife)	2.1	4.3*

* $p < 0.02$.

both sides) occurred at least once per week. As shown by the tone of voice used in speaking of him, about half the wives showed marked obvious warmth towards their husbands. In none of these respects did the West Indian families differ from the non-immigrant families. Dissatisfaction was rated according to scores indicating degree of dissatisfaction in a number of areas involving the family (child rearing, leisure, helping with household tasks, etc.). These subscores were then summed to give an overall dissatisfaction score. Again the groups did not differ significantly, but the mean score was slightly lower for West Indian mothers.

(f) *Parent-child relationships*

Parent-child relationships were measured using similar techniques. In both groups over half the mothers showed marked warmth toward their 10-yr-old child and the proportion showing little or no warmth was similar in both groups. As there was only a short interview with fathers it was not possible to assess paternal warmth. Parents were asked about the sort of conversations they had with their child, what they talked about and how often they did so. In both groups mother-child communication was rather greater than father-child communication and there was a tendency (falling well short of statistical significance) for communication to be slightly less in the West Indian families. About the same proportion of children confided in their parents but again slightly more children in West Indian families confided in their father only infrequently or rarely.

TABLE 6. PARENT-CHILD RELATIONSHIPS

	W.I. Families	Non-immigrant Families
Mother		
Marked warmth to child (%)	52.0	60.5
Very little communication with child (%)	13.7	8.7
Child confides in mother frequently (%)	21.6	21.7
Mean interaction score	5.5	6.7
Father		
Very little communication with child (%)	28.3	17.4
Child confides in father, frequently (%)	56.5	40.2
Mean interaction score	3.5	5.1

Parent-child interaction was assessed by asking systematically about all types of non-punitive interaction (other than conversations not involving a shared activity) between parents and the 10-yr-old child during the preceding week. Activities such as rough and tumble play, games, reading, outings and helping with household activities were all included. A score of 1 was given for any interaction lasting less than 1 hr and 2 for any interaction lasting longer than that. The overall score then consisted of a sum of the individual interaction scores for the week. The West Indian fathers interacted appreciably less with their children than did the non-immigrant fathers and there was a similar but lesser trend for mothers.

(g) *Discipline*

Family discipline was assessed in terms of what the children were allowed to do or encouraged to do, rather than in terms of the methods employed to reach that end. Two overall scales were used in this connection. The first, "self reliance", consisted of items reflecting the amount the child did in helping look after himself at home together with items reflecting the amount of autonomy he was granted in this sphere. On both counts the children in the West Indian families did more, as illustrated by the selection of individual items given in Table 7. More children in West Indian families cleaned their own shoes, tidied their things away and made their own bed. Also more were allowed to travel by bus alone and more were able to regularly use the family cooker (or stove) without adult supervision. In all these

TABLE 7. FAMILY DISCIPLINE

	W.I. Families	Non-immigrant Families
Mean "self reliance" score	23.6	18.1**
Mean "prohibition" score	15.5	13.9
Self-reliance		
Cleans own shoes sometimes/regularly (%)	96.1	78.3**
Make own bed sometimes/regularly (%)	92.2	39.1***
Travel by bus alone sometimes/regularly (%)	74.5	66.3
Regularly tidy own things away (%)	96.1	75.0**
Regularly use cooker without adult supervision (%)	94.1	58.2
Prohibitions		
Not allowed to climb on furniture (%)	88.2	69.6*
Not allowed out without saying where going (%)	90.2	75.8
Not allowed out in evening to club (%)	41.2	16.5**
Restrictions on friends (%)	25.5	16.7
Restrictions regarding clothing (%)	22.0	48.3**

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

respects the West Indian children were expected to take adult responsibility in the home at an earlier age than were children in non-immigrant families.

On the other hand, the West Indian parents also exercised more control about how the children spent their free time. More were restricted in their choice of friends, fewer were able to go out without saying where they were going, fewer were allowed out of an evening to go to clubs and fewer were allowed to climb on the furniture. With respect to the last item, although no systematic measures were made concerning home decor, it was striking how well kept were even the poorest of the West Indian homes. The "front" rooms especially were usually an obvious source of pride to the families and were maintained accordingly, often with finery which would be unusual in the homes of non-immigrant families of comparable occupational status.

Although, on average, West Indian children were more restricted in their leisure activities than were children in non-immigrant families there were no differences between the groups on many items and there was very considerable overlap in the patterns of discipline. There was also one item in which West Indian children were less restricted and that concerned their freedom in choice of clothing. Most West Indian children could wear what they wanted, whereas this applied only to half of the children in non-immigrant families.

(h) Education

In the main study of non-immigrant families no information was obtained on "educational-type" interaction between parents and children. However, this information was available on a small random sample of 1 per cent from the same population which formed part of a study by Sturge (1972) and it was available for the West Indian families. No reliable conclusions can be drawn from such small numbers but in view of the interest in this area, some findings are provided in Table 8. It may be seen that on all measures but one the West Indian families scored more highly on educational involvement than did the non-immigrant families. More had taken their children to the library in the last 3 months, more parents had read books

during the same period and more had checked their child's homework. Only on buying books for the child did they score marginally lower. In spite of the small numbers, it is evident that the West Indian families have quite strong educational interests, although whether they differ significantly from non-immigrant families in this respect remains uncertain.

TABLE 8. FAMILY INFLUENCES REGARDING LEARNING

	W.I. Families No. (%)	Non-immigrant Families No. (%)
Taken child to library in last 3 months	42 (84)	7 (41)
Bought books for child in last 3 months	25 (50)	11 (65)
Mother read a book in last 3 months	28 (56)	2 (12)
Father read a book in last 3 months	21 (53)	8 (47)
Parents checked homework in last 3 months	24 (58)	6 (35)

N.B. Total number known varies somewhat by item.

There was one major difference between the groups in terms of educational issues; the type of school desired for the child (an item available from the larger random samples). In the West Indian families only 7 per cent wanted their child to have selective schooling compared with 28 per cent of non-immigrant families ($p < 0.05$). Of course, this may simply reflect a realistic appraisal of the likelihood of the children being accepted for selective schooling in the light of current educational practice.

(i) *Household tasks*

The participation of each member of the child's household in routine activities (cleaning, making beds, shopping for food, preparing meals and cooking, laying the table and washing up) was assessed by questioning systematically about who did these things in a typical week. The scale is designed to measure a person's relative participation, *not* the amount of work he does so that an individual's score is expressed as a percentage. The participation of the father, relative to that of the couple, is derived by expressing his score as a percentage of the sum of his score and the mother's score. It was also noted how many of the activities the mother and father did together at least once a week.

TABLE 9. HOUSEHOLD ACTIVITIES

	W.I. Families	Non-immigrant Families
Mean household participation score for fathers	6.8	6.7
Mean relative participation of father	11.8	8.3
Any activities performed jointly by father and mother (%)	27.3	36.9
Mean household participation score for child	19.6	7.4

From the table it is clear that there are scarcely any differences between the two groups of families on adults' participation. However, 10-yr-old West Indian children do almost 3 times as much as non-immigrant children in this sphere of household tasks. This supports the results in the section on discipline, that West Indian children do more in looking after themselves in the home.

(j) *Contacts with kin*

On the West Indian families we did not obtain detailed information on their patterns of contact with kin and friends. However, we did ask whether the parents of the child's parents lived in the U.K. and also how many of the parents' sibs lived here and how many in the West Indies. Only 12 per cent of wives' parents and 6.5 per cent of husbands' parents lived in this country. A far higher proportion of families had sibs of the wife and/or husband living in the U.K. and there were only 5 families (out of 46 where the information was known) where there were neither parents nor sibs living in the U.K. None of these 5 families received any help or assistance in day to day matters (those listed in Table 10). In fact, West Indian families on the whole received less help than did non-immigrant families and in particular they received far less help from friends or neighbours.

TABLE 10. HELP AND ASSISTANCE FROM RELATIVES AND FRIENDS

	W.I. Families	Non-immigrant Families
% looking after children	13.7	30.7*
% buying things for children	9.8	15.9
% having children overnight	5.9	12.5
% lending things	0	0
% helping with shopping	2	15.9*
% lending money	2	8
Families where wife's kin have given help (%)	19.6	25
Families where husband's kin have given help (%)	3.9	12.5
Families where friends have given help (%)	7.8	34.1**

* $p < 0.05$; ** $p < 0.01$.

(k) *Services*

In almost all respects there was a remarkable similarity between the West Indian and the non-immigrant families in both the type and number of services contacted during the previous 12 months. These were recorded in terms of any contacts involving the nuclear family, either instigated by the family or by the service. The mean number of services contacted was 1.6 for the West Indian families and 1.8 for the non-immigrant families, and the proportion contacting each of the 19 individual services questioned about were very similar (the services commonly contacted are noted in Table 11). The only possible exception was the police, in which only half as many West Indian families had contact during the preceding 12 months. This

TABLE 11. SERVICES

	W.I. Families	Non-immigrant Families
Mean number of services contacted	1.6	1.8
Welfare services (%)	23.1	15.4
Health visitor (%)	11.5	8.8
School welfare (%)	13.5	11.0
Teacher (%)	19.3	24.2
National assistance (%)	21.2	22.0
Police (%)	9.6	20.9
Housing office (%)	21.2	25.3
Solicitor (%)	15.4	16.5

probably reflects both the somewhat lower crime and delinquency rate in the West Indian families and also their greater reluctance to turn to the police for assistance (although we have no direct measure of the latter).

DISCUSSION

The borough studied has increased its population nearly tenfold during the last 100 yr and, like other parts of London, it has done so to a considerable extent by absorbing migrants both from other parts of Britain and from abroad (Dyos, 1961). The net result has been a somewhat cosmopolitan area of families of varied background, of whom not more than half at any one point of time have been born in the borough. The Irish have been coming since the early nineteenth century and, until recently, have constituted the single largest immigrant group. After the second world war there was appreciable migration from Europe and then in the 1950's there was a great increase in immigration from Indian, Pakistan and the West Indies (Castles and Kosack, 1973). Accordingly, the present study is concerned with the largest of the most recent immigrant groups who have come into an already mixed population. It would be misleading to consider the host population as culturally homogeneous, as they are not. Nor would it be correct to regard the West Indian families as all the same. There was considerable heterogeneity within the group due both to the island of origin and to other reasons.

Nevertheless, in considering the needs of children from immigrant families it is appropriate to consider how far their home circumstances and family patterns differ from those shown by non-immigrant families living in the same area. Perhaps the most striking finding is the extent of the *similarity* between the West Indian families and the non-immigrant families.

Some politicians have spoken about "alien cultures" within our midst and have emphasised the lack of integration of immigrant groups. We have no evidence about other immigrant populations but our findings on West Indian families certainly negate that view. Of course there are important and distinctive features about the style of life in families originating in the West Indies, which remain and are likely to continue (as they should). But, to a very considerable extent the West Indians who have come to London seem to have adapted their way of life to the cultures and patterns of living existing in the inner city area to which they have come. In particular, the "nuclear family" was the norm for the West Indian families just as it was for non-immigrant families. Most consisted of stable marriages which had lasted for a dozen or more years. In many cases there were quite a few kin living in this country and in only 4 per cent of the families were there children of either parent still living in the West Indies. For the most part fathers were as much involved with their families as were native Londoners.

The rates of mental disorder and behavioural deviance were closely similar for West Indian and for non-immigrant parents, and the quality of marital and of parent-child relationship was much the same in the two groups.

The four most important areas where there were differences were employment, housing, family size and child rearing. Very few of the West Indian parents (fathers or mothers) held non-manual jobs and the proportion in menial and unskilled

occupations was double that in non-immigrant families. It might be expected that this reflected the West Indian parents having more limited schooling. However, a similar proportion of West Indian and non-immigrant fathers had taken some form of school examination and only slightly fewer West Indians had taken further training of some kind after leaving school. Some caution is needed in assuming that educational and occupational qualifications in the West Indies mean the same standards as they do in this country, although they have a similar basis. Also, advanced qualifications were rather less common in West Indian parents. Nevertheless, it is unlikely that these small differences can explain the employment barrier encountered by West Indians, particularly as the better educated West Indian mothers were also mainly in unskilled or semi-skilled manual jobs. Inasmuch as education is an important contributor to the type of employment offered, it is to be hoped that the next generation will fare better in the job market, as they should do so in the educational sphere. The educational attainments of the West Indian children born in this country were significantly superior to those of children born in the West Indies (Yule *et al.*, 1974). However, their attainments were still below those of children for non-immigrant families and West Indian children were more likely than were indigenous children to go to schools with high rates of pupil turnover, absenteeism, and a high proportion of "free-meals" children, factors associated with less satisfactory educational progress (Rutter *et al.*, 1974c). Thus, there are still educational matters which must remain a cause for concern. Moreover, the P.E.P. study (Daniel, 1968) showed that there was considerable job discrimination, particularly in the case of individuals with high qualifications. In that sense, the frustration could be greater for the next generation, unless steps are taken to remedy the situation.

With housing, the situation is more complicated. As noted with immigrant groups generally, the West Indian families suffered from overcrowded poor quality accommodation. Rex and Moore (1967) have argued that this constitutes the main basis of racial discrimination. They differentiated the population into those who owned property and those who did not (or who did so only by virtue of multiple occupancy dwelling). According to their thesis the West Indian families should fall almost exclusively into the latter group but in spite of the many barriers in the housing field (Daniel, 1968), it was most impressive that this was not the case. Nearly half the West Indian families owned their own homes (more than double the rate amongst non-immigrant families) and many of these did not share their house with other families or lodgers. The property was often old, poor quality and bought under disadvantageous financial arrangements. Nevertheless, it brought the West Indian families into the property-owning section of the community, and so far as we could judge the homes were usually remarkably well maintained in spite of their poor facilities. Similar findings have been reported from a study in Bristol (Richmond, 1973), which found that owner occupation was most characteristic of the larger West Indian families. It was striking that the average mortgage repayments of foreign-born householders was more than double the average for English householders. As in London, overcrowding was frequent. The extent to which house ownership will bring advantages in the long-term will depend on the length of lease of the property (a factor about which we have no information), the remaining life of the building, the value of property in the area, and national housing policies.

The relative significance for the future of house ownership and of low occupational status (which, in unusual fashion, were associated in the West Indian group) remains a point of considerable theoretical and practical importance which deserves careful study.

A further difference between the West Indian and non-immigrant families concerns family size. More than twice as many West Indian mothers had at least 5 children; in fact three-fifths did so. This frequently led to great overcrowding in the home and there may well be serious educational consequences with families as large as that. It is known from several studies that large family size is associated with reading difficulties and impaired verbal intelligence (e.g. Nisbet, 1953; Douglas, 1964; Rutter and Yule, 1973). We did not enquire about the families' attitudes to or use of family planning services but clearly such services should be made available to those West Indian families who wish to use them.

The fourth main area of difference between the West Indian and non-immigrant families concerned patterns of child-rearing. Many more children in West Indian families had experienced child-minding by non-relatives during the pre-school period and more had been taken into the care of the local authority. A high proportion of the West Indian mothers went out to work. This was frequently financially necessary for families buying their home and it need not have any adverse consequences for the children provided proper, stable, high quality arrangements can be made for the care of the children (Yudkin and Holme, 1963). Unfortunately, child-minding is not always of very high quality (Yudkin, 1967) and institutional care is usually very much a second best. In the West Indies grandmothers played a crucial role in the care of pre-school children but they rarely come to Britain with the families so that alternative arrangements need to be found. Unless adequate provision is available, these unfortunate early life experiences may store up trouble later in the children's development. It was reassuring that the experience of child-minding by non-relatives did not seem to put the children at an increased psychiatric risk (Rutter *et al.*, 1974b). Nevertheless, from what is known about the effects of different types of upbringing (Rutter, 1972), it would be expected that the ill-effects would mainly involve cognitive development. Studies are required to investigate the effects of varying patterns and quality of child minding arrangements so that deficiencies may be remedied. However, also, it must be recognised that families often had recourse to poor quality child-minding because better alternatives were not available. Both more and better provision for pre-school care is needed.

West Indian parents were deeply concerned for their children and usually had good warm relationships with them. They were much concerned about their children's education and took steps to help them with their school work. Compared with non-immigrant families they more often encouraged their children to be more self-reliant and they exercised more control and disciplines. These are positive qualities which probably did much to help their children develop in the way that they should.

However, also there are aspects of the patterns of child-rearing in some West Indian families which give cause for concern. We found somewhat less interaction between parents and children in West Indian families. This is probably not very important in itself but it appears from what we observed (in anecdotal fashion) in the

homes and from what others have written (Pollack, 1972), that some parents (as also some non-immigrant parents) did not understand the importance of play in children's learning (Millar, 1968), and consequently did not always provide the optimal conditions for early cognitive growth and development. Thus, Pollack (1972) found that three-year-old children in West Indian families were much less likely than were their native English counterparts to go on outings, to have toys, or to play with their parents. This has sometimes been attributed to a lack of feeling for the children but our findings suggest that is an unwarranted inference. West Indian parents are just as warm and loving as are other parents. On the other hand, they may not adequately appreciate the environmental conditions needed to best aid a child's intellectual development. More evidence on this point is needed and conclusions must remain very tentative at the moment. However, the issue is important and the use and value play warrants serious attention in studies of younger children.

Knowledge does not exist which allows of confident judgments that one method of discipline is superior to another, except in extreme instances (Becker, 1964). Accordingly, it would be inappropriate to state whether the tighter discipline and control in the West Indian families was good or bad in itself. So far as we could judge it had not had any particularly marked effects on the children by age 10 yr. Nevertheless, the difference between the control at home and the greater permissiveness both in the homes of many non-immigrant children and at school might constitute a source of some conflict and frustration during adolescence. Whether or not it does requires investigation.

Throughout this paper, the West Indian families have been discussed as a group without concern as to which island the family came from. This seemed justified both because the majority came from Jamaica and because the similarities in most respects outweighed the dissimilarities. However, we have already noted the considerable heterogeneity within the West Indian group and it would be quite misleading to talk about "the" West Indian pattern of family life. It should also be said that, although they share certain problems, the various groups of commonwealth immigrants (West Indian, Cypriot, Indian, Pakistani, and those from various parts of Africa) differ in many important respects (Oakley, 1968).

SUMMARY

A total population survey was made of all 10-yr-old children in an inner London borough. As part of this study, systematic standardised interviews were held with random samples of parents of children from West Indian families and of children from non-immigrant families. In contrast to the situation in the Caribbean, the nuclear family was the norm for West Indian families living in London, just as it was non-immigrant families. In many respects the West Indians and non-immigrant families were closely similar. No differences were found in rates of parental mental disorder or criminality and the quality of family relationships was the same in the two groups. However, the West Indian parents were more likely to hold semi-skilled or unskilled manual jobs and to live in poor quality overcrowded housing. In spite of this, they were also more likely to own their own house. West Indian families had many more children and differed somewhat in their patterns of child-

rearing. The significance of these findings is discussed in terms of both likely effects on child development and also the future implications for West Indian families living in London.

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ARRESTS AND DELINQUENCY IN TWO GENERATIONS: A STUDY OF BLACK URBAN FAMILIES AND THEIR CHILDREN

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It is part of our folk wisdom that children resemble their parents in deviant behavior. As we say, "the apple does not fall far from the tree". Systematic evidence for the similarity of parents' and children's deviance dates at least from work in the 1920's by Burt (1925) and by Healy and Bronner (1926). Whether one looks at studies that take delinquent children as index cases and contrast their parents with the parents of non-delinquents, or whether one looks at studies that take criminals as the index cases and compare their offspring with those of non-criminal parents, the fact that deviance is linked across generations seems unanimously confirmed. What we know little about at this point is under what conditions this linkage occurs and whether there is a reflection in children of specific parents' behaviors or only a general tendency for deviance in one generation to be followed by some form of deviance in the next.

It is clear that there is not a simple invariate repetition of parental behaviors by children. While criminal parents tend to produce more than their share of disturbed children, some of their children appear normal and the disturbance in others is not always delinquency. Conversely, while delinquents seem to have "bad" parents more often than non-delinquents, many have apparently adequate parents and when the parent is not adequate, his problems may be something other than illegal acts. In the absence of perfect concordance between the behavior of parents and children, studying the conditions under which and the forms in which deviance in one generation is passed on to the next may provide suggestions as to how that transmission could be interrupted.

A study of the adopted children of criminals by Hutchings and Mednick (in press) suggests there are both genetic and environmental factors in the transmission of deviance, since children's criminality was related to criminality of both biological and adoptive parents. Unless the association with behavior of the adoptive parent was due entirely to selective adoptive placement of the offspring of criminals, this would suggest that the environment must have at the minimum a triggering effect for children with a genetic predisposition to deviance. Since removing all effect for children with a genetic predisposition to deviance. Since removing all children of deviant parents to non-deviant homes would be both impractical and a gross invasion of parental rights, it would be useful to learn whether there were any natural childhood settings which seem to reduce the risk of deviance for the children of deviant parents in the hopes of fostering such countervailing forces.

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Several years ago, the first author became interested in the possibility that the quality of the extended family might help to explain whether or not parents' deviant behavior was passed on to their children. It was likely that the extended family would play a larger role in the lives of children of deviant parents than of non-deviants, since inadequacies in the natural parents often required grandparents or aunts and uncles to step in as caretakers. To lay the groundwork for exploring the effect of the grandparents, we had asked the index subjects in a follow-up study of white adults, who were formerly child guidance clinic patients or normal control subjects chosen from school records, for the names and ages of their children. We already had considerable information about the grandparents of these children from the original clinic records, which contained information about their functioning as parents of the index patient cases. In addition, both patient and control cases were asked many questions about their parents in interview.

For 67 sons over age 18 and reared in our own city, we located school records and checked police records. We found, as we had expected, a relationship between the index cases' deviant behavior and their sons' failure to complete high school and delinquency (Robins and Lewis, 1966). And we also found a striking relationship between the sons' problems and reports of deviance in their grandparents, i.e. parents of our index cases. While this finding was consistent with the hypothesis that the behavior of the extended family might modify the child's outcome, the study had some important weaknesses. Only sons were studied; their number was small; and their parents were predominantly child guidance clinic patients who may not be representative of the general population of parents of deviant and non-deviant children. In addition, information about the non-index parent was limited to reports in interview by the spouse and such records concerning the index case as happened to refer to the spouse, and we had no information about his or her parents, i.e. the other set of grandparents.

The current study is an attempt to improve on the first one and to extend it to a normal black sample of children of both sexes. The design resembles that of the first study in that the starting point was a follow-up of children into adulthood and that, during the follow-up interview, these now adult males were asked for the names and ages of each of their children as well as for information about the behavior of their spouses and parents. In an extension of the design of the original study we also obtained the name and age of each child's mother, so that records for the non-index parent could be sought. Thus our information is somewhat more symmetrical than in the first study and covers paternal aunts and uncles as well as grandparents. The study is still in progress, but a first portion of it, to be reported here, has been completed.

METHOD

In 1965 and 1966, 223 out of 235 black men aged 30-36 who had been identified in St. Louis public elementary school records, were located and interviewed. In addition, their school records through high school were obtained as well as records from a number of other agencies, including the police and the juvenile court. To be eligible for the study, elementary school I.Q. records of 85 or higher were required. The sample was chosen so that in elementary school half appeared to be

living in intact families and half in broken homes, judging from the name of the guardian on the school records; half had moderate to severe truancy and/or academic retardation and half had less severe or no elementary school problems; half had guardians in the lowest socio-economic status (i.e. unemployed, domestics or unskilled laborers) and half had guardians with jobs above that range. All had been born in St. Louis and had resided there at some time between 1959 and 1964 (i.e. after age 25). The sample selection criteria were devised for testing the effect of broken homes, school problems and social class on the black men's outcome. They have no direct relevance to this study of the offsprings' outcomes. However, it may be important to remember that the fathers came from the top half of the I.Q. range of black public school students of that era and that there were approximately twice as many from the higher socio-economic statuses as one would have found by chance.

When each man was interviewed, we asked him for names, birthdates, and sex of his children and for the names and ages of his children's mother(s). His answers enabled us to identify children and mothers in public records. We also asked whether he had any illegitimate children but did not pursue their names and their mothers' names if they were not volunteered. For all children, we asked which had lived with the father and with whom they had lived when they were not with him. To get a measure of the father's (the index subject's) own involvement with the extended family, we asked whether he kept in touch with his blood relatives and with his current or most recent wife's relatives.

Because the men were in their early thirties when interviewed, many of their children are still too young to know for certain whether they will graduate from high school or whether they will become juvenile delinquents. Therefore we are studying only those children who were 18 by 31 December 1973. There were 198 qualifying children reported in interviews with 101 men. For 145 of these children, we found records indicating that they had lived in St. Louis at some time. The current report deals with these 145 children and their families. They are the children of 76 men involved in 80 relationships with 79 women. (One of the mothers had children by two of the men in the sample. If this seems a remarkable coincidence, remember that the men were all about the same age, all attended the same public schools and lived in the same urban ghetto, which is really a small town within a large city.) The 53 children omitted either grew up outside of St. Louis, were illegitimate children whose names had not been volunteered by the father, or were children whom we could not identify in records, often because the mother had remarried and the child was using the unknown step-father's name. Illegitimate children and those brought up in other men's households were included when they could be identified. Eleven (8 per cent) of the 145 children included were illegitimate and 7 (5 per cent) appeared in records under a last name other than that of their father.

Because the men were only 30-36 when interviewed in 1965 and 1966, for their children to have now reached the age of 18, they had to have been born by the time their fathers were approximately 25 yr of age. We were concerned that our age requirements, by selecting men who became fathers early, might have selected unusually deviant or unusually conforming fathers. However, there is no evidence that the fathers of these children differed in early deviance from men who had

no children or had them later in life (Table 1). Similar proportions had been held back and truanted in elementary school, had finished high school, and had been known to the juvenile authorities. Since excluding children born to fathers over age 25 does not seem to have biased our selection of their fathers, the results reported here would probably be representative of children of our total sample.

TABLE 1. FATHERS OF OFFSPRING STUDIED COMPARED WITH TOTAL PREVIOUS GENERATION

	Fathers (76) (%)	Total sample from fathers' generation (235) (%)
Held back and truanted in elementary school	19	20
Finished high school	47	53
Had juvenile offense	31	29

For mothers and children, we sought school and juvenile court records. We often had first to obtain birth certificates to get precise dates of birth and early addresses with which to verify identities in school and police records. We also obtained the mothers' adult arrest records and updated the fathers' arrest records to the age at which his youngest child in the study was aged 17. The present report is based on police and juvenile records of both parents, police and juvenile court records of the offspring, and information about other relatives obtained through the father's interview and occasionally through records sought for the father which mentioned deviance of his parents or siblings. No attempt has been made to interview the children or their mothers. Because information about police records of fathers, mothers, and offspring are based entirely on official records, and not on interview data, there is no possibility that bias or halo effects on the part of the researchers has played a part in finding relationships between the police records of the two generations. Of course, it is entirely possible that the appearance of a record for the child may reflect bias on the part of a policeman or judge who happened to know that one or both parents had a record.

Delinquency in this study is defined as being known to the juvenile court or to the police before the age of 17 for a non-traffic offense. "Adult" arrests are non-traffic arrests at age 17 or later. The choice of age 17 as the cut-off point conforms to the Missouri law defining juveniles.

The present paper sets out to do three things:

- (1) To learn whether there have been changes in delinquency patterns over a generation.
- (2) To establish the extent and nature of the continuity between parents' arrest histories and their children's.
- (3) To find other family characteristics that might protect children of arrested parents from repeating the parental pattern.

RESULTS

(1) *Changes in delinquency over a generation*

Surprisingly, in the light of the widespread reports of increases in juvenile

delinquency over the last 20-30 yr, we found no change in the proportion known to the juvenile court or to the police before the age of 17 in the two generations (Table 2). The fathers had a juvenile delinquency rate of 31 per cent and their sons also had a delinquency rate of 31 per cent. Girls had a lower rate of delinquency, only 14 per cent, as had their mothers before them (16 per cent). (For this calculation, we omitted mothers whose school records showed they grew up outside the St. Louis area and thus were not at risk of arrest by the St. Louis police. All the fathers were reared in St. Louis.) These delinquency rates are higher than were rates in the earlier study of the white sons of patients and controls, of whom only 19 per cent had a juvenile offense. This probably reflects a difference in liability to arrest by race, rather than an increase in overall rates of delinquency in the intervening 9 yr between the two studies.

TABLE 2. JUVENILE DELINQUENCY IN TWO GENERATIONS (EXCLUDING TRAFFIC ARRESTS)

	Males		Females	
	N	Percent delinquent	N	Percent delinquent
Parents	(75)	31	(64)*	16
Offspring	(86)	31	(59)	14

*Mothers whose high school records showed them to have grown up outside of St. Louis are excluded since they would not have been at risk of being known to St. Louis police or juvenile courts. Since the fathers were all selected from St. Louis school records, they were by definition at risk of arrest in St. Louis.

In the current all-black sample, the ratio of male to female rates of delinquency was 2 : 1. This is a considerably lower ratio between the sexes than is usually reported (Lunden, 1964, Table 23).

Not only has the overall number of delinquents remained much the same between one generation and the next, but the frequency of offense types has also remained much the same (Table 3). The offenses in Table 3 for the fathers are based on the total sample rather than only on the fathers of these particular boys, to provide more stable estimates of the rates for specific offenses in the parent generation. As compared with the fathers' generation, the sons show a slight increase in auto theft, perhaps because there are more autos, and a slight increase in narcotics arrests. However, there is nothing like the tide of narcotic arrests that reports of a heroin epidemic in the late 1960's might have led us to expect. Indeed, among boys young enough to acquire a juvenile arrest for drugs after 1968, there was only a single case. In both generations the principal offense was theft.

Missouri juvenile court records are destroyed when the offender reaches age 21, but a card is kept indicating that he or she was known to the court. Since girls' referrals to juvenile court were often parent-initiated, rather than police-initiated, there was often no associated police report to explain the nature of the complaint. Thus we lack information in some cases about the charge against the mothers and the older daughters. We can note, however, an apparent small increase in the frequency of theft among girls, since this is an offense which comes to police attention. There is also a suggestion that girls may have become delinquent earlier in the younger generation. However, the small numbers make both observations questionable.

TABLE 3. HAS THE NATURE OF JUVENILE DELINQUENCY CHANGED?

	Father's generation (235) (%)	Sons (86) (%)	Mothers (79) (%)	Daughters (59) (%)
Delinquent	29	31	16	14
Age first offense				
Before 13	10	10	3	4
13-14	7	6	3	5
15-16	12	15	10	5
One offense	17*	12	9	8
Two offenses	7	7	4	2
Three or more	12	12	3	4
Nature of offense†				
Theft	19	20	1	7
Peace disturbance	8	7	1	4
Vandalism	6	10	1	0
Injury	5	8	0	3
Weapons	5	7	0	2
Sex	4	5	1	0
Runaway	4	3	1	3
Auto theft	3	6	0	0
Incorrigible	1	3	5	5
Narcotics	†	3	0	0

*Adds to more than 29 per cent because arrests through age 17 are included.

†Less than 0.5 per cent.

‡Add to less than 16 per cent for mothers because court records are destroyed at age 21. Information about specific offenses comes only from police records for older generation.

(2) *The effect of parental arrest*

(a) *The transmission of delinquency between parents and children.* Figure 1 presents the association between the parents' delinquency and their child's. The left side of the figure takes the parent as the index case and looks at the frequency with which a parent produced one or more delinquent sons or daughters, given that he or she had at least one child of the appropriate sex. The right side of Fig. 1 takes the child as the index case and looks at the frequency with which he or she had a delinquent parent. Looking at the left side, we note that while delinquency in both the mother and father is associated with delinquency in their sons, there is a significant increase only for the mothers.

The chances of having at least one delinquent son or daughter increase, of course, with family size and thus an association between parental delinquency and large families might account for the relationship between parent's and children's delinquency. On the right hand side of Fig. 1, where results are presented from the child's point of view, family size is not confounded with parents' delinquency, since every child has exactly one father and mother. Delinquent offspring of both sexes tended to have delinquent mothers at a level well above chance. Delinquent boys also tended to have delinquent fathers, but the difference was not quite significant. For daughters there was no association between their own delinquency and delinquency in the father.

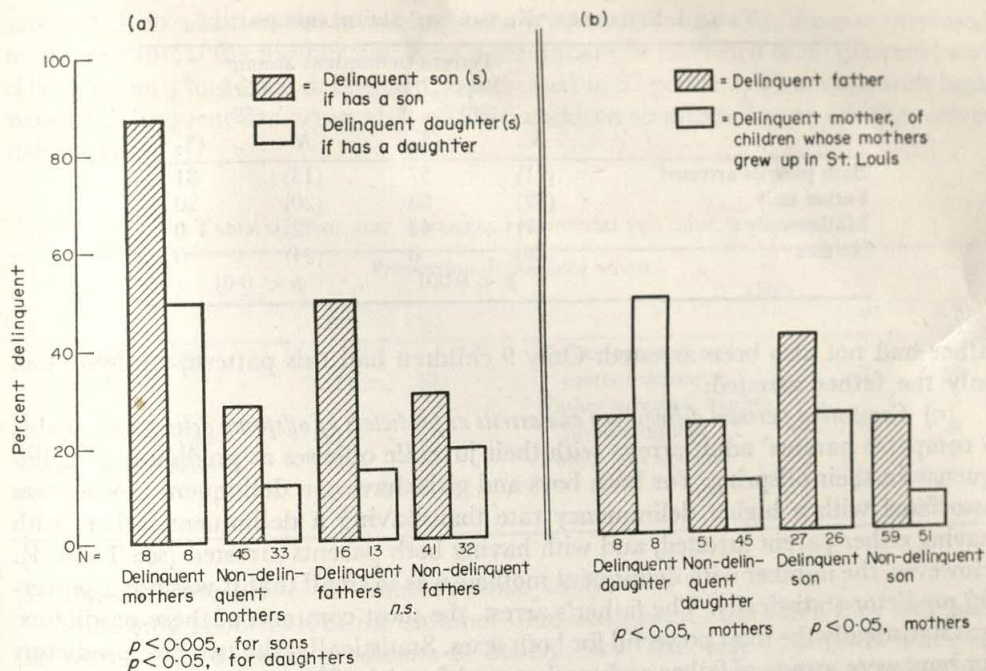


FIG. 1. Transmission of delinquency between generations. (a) From parent's point of view: risk of having a delinquent child. (b) From child's point of view: risk of having a delinquent parent.

Although delinquency in females is rare in both generations, the association between mothers' and daughters' delinquency was so strong that in parents of delinquent girls the 2 : 1 ratio of male to female delinquency in the overall sample is reversed to 1 : 2. The stronger effect of maternal than paternal delinquency on boys as well is shown by reduction of the male-female ratio of delinquency in the parents of delinquent boys to 1.6 : 1 while it is increased to 3 : 1 in the parents of non-delinquent boys.

(c) *Adult parental arrests.* It is sometimes thought that young black males are so vulnerable to arrest in U.S. cities and that their arrests are so random that one could neither expect to find many free of arrest records nor any meaningful correlates of their being arrested. In our sample, however, 38 per cent of the boys and 44 per cent of the girls had fathers who had had no significant arrests (i.e. not more than two arrests of any kind, no convictions, and no arrests for a felony). In addition, paternal arrests were strongly associated with the delinquency of their children (Table 4). Almost half of the boys with an arrested father were delinquent (45 per cent), compared with only 9 per cent of those whose father was not arrested. For girls, 24 per cent were delinquent when they had an arrested father and none was delinquent when the father had not been arrested.

For both sexes, having both parents arrested was associated with a higher risk than was having only one parent arrested. It is difficult to say whether this was an effect of the mother's arrest or an effect of a double dose of parental influence, irrespective of the parent's sex, because it was rare to have a mother arrested if the

TABLE 4. EFFECTS OF TWO PARENTS' ADULT ARRESTS

	Percent delinquent among			
	Boys (86)		Girls (59)	
	N	(%)	N	(%)
Both parents arrested	(21)	57	(13)	31
Father only	(32)	38	(20)	20
Mother only	(7)	43	(2)	0
Neither	(26)	0	(24)	0
	$p < 0.001$		$p < 0.01$	

father had not also been arrested. Only 9 children had this pattern, while 52 had only the father arrested.

(c) *Comparing parental delinquency and arrests as predictors of offspring delinquency.* Table 5 compares parents' adult arrests with their juvenile offenses as predictors of delinquency in their offspring. For both boys and girls, having a delinquent mother was associated with a higher delinquency rate than having a delinquent father, with having either parent arrested, and with having both parents arrested (see Table 4). However, the number with delinquent mothers was so small that it was not a powerful predictor statistically. The father's arrest, the most common of these predictors, was statistically the most powerful for both sexes. Statistically, the two best predictors for boys were arrests of father and mother, and for girls, father's arrest and mother's delinquency. Putting these two predictors together (Table 6), it is possible to predict delinquency with about the same level of success for boys as for girls. Note that no boy or girl is delinquent in the absence of both predictors, and also note that both boys and girls are delinquent in only slightly over half the cases when both parental predictors are present.

TABLE 5. PARENTS' ARREST COMPARED WITH PARENTS' DELINQUENCY AS PREDICTORS OF CHILD'S DELINQUENCY

	Percent delinquent among			
	Sons		Daughters	
	N	(%)	N	(%)
Father has adult arrest	(52)	44	(33)	23
None	(34)	12	(26)	0
	$p < 0.003$		$p < 0.02$	
Father is delinquent	(26)	46	(14)	14
Not	(60)	25	(45)	13
	$p < 0.05$		<i>n.s.</i>	
Mother has adult arrest	(31)	48	(15)	27
None	(55)	22	(44)	9
	$p < 0.02$		$p < 0.10$	
Mother is delinquent	(11)	64	(9)	44
Not	(66)	29	(44)	9
	$p < 0.05$		$p < 0.03$	

Taking boys and girls together, having two parents arrested was the strongest predictor of delinquency. Half (50 per cent) were delinquent with both parents

arrested. If in addition the father had been a juvenile delinquent, the rate increased to 56 per cent; if the mother had been a delinquent, it increased to 60 per cent; and if both parents had been delinquent, it increased to 67 per cent. Thus even with both parents delinquent *and* arrested, 2 of the 6 children so affected were not themselves delinquent.

TABLE 6. TWO BEST PARENTAL PREDICTORS FOR BOYS AND GIRLS

Boys	Proportion delinquent when		Girls	N	(%)
	N	(%)			
Father and mother arrested	(21)	57	Father arrested and mother delinquent	(7)	57
One parent arrested	(41)	37	Father arrested, mother not delinquent	(25)	16
Neither parent arrested	(24)	0	Father not arrested	(21)	0
	$p < 0.001$			$p < 0.001$	
	$\phi = 0.46$			$\phi = 0.50$	

(3) *Behavior of members of the extended paternal family*

Since only about half of the children were delinquent even when they had both the better two parental predictors of delinquency, and only two-thirds when all 4 parental predictors were present, some factors other than the parents' infractions of the law must explain why some of these children became delinquent and others did not. To search for protective factors, we consulted information from the father's interview about the behavior of his parents and siblings. Antisocial behavior on the part of both paternal grandparents was associated with delinquency in the children, but there was little difference between one antisocial grandparent and neither (Table 7). When paternal aunts or uncles had been arrested, more children were delinquent. Delinquency was less powerfully related to paternal relatives' behavior than to parents' behavior.

TABLE 7. EXTENDED FAMILY AND CHILDREN'S DELINQUENCY

	Proportion delinquent among		Girls	N	(%)
	Boys				
	N	(%)			
Paternal grandparents antisocial					
Both	(6)	83	(6)	33	
One	(40)	33	(26)	11	
Neither	(40)	23	(28)	11	
	$p < 0.02$		$p < 0.15$		
Paternal aunt or uncle arrested					
Yes	(42)	40	(25)	24	
No	(38)	24	(30)	7	
	$p < 0.10$		$p < 0.10$		

In our previous study of the offspring of white child guidance clinic patients and controls, we had found grandparents' behavior more strongly related to child-

ren's delinquency than we did parents' behavior (Table 8). We were puzzled by the strong relationship between the grandparent and grandchild's behavior in the earlier study, having expected the behavior of the parent to have a more direct effect. The current study supports our earlier expectation.

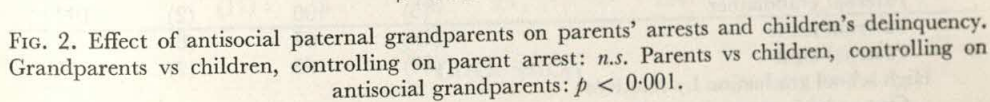
The difference in the results of the two studies may result from differences in the sources of data. Most of the information about grandparents in the first study came from psychiatric clinic records, made when the parent was about age 13 and grandparents in their late thirties or early forties. Information about grandparental deviance was being sought to explain the behavior of the parent, who had been referred for psychiatric or behavior problems. In the current study, grandparents were twenty years older at the time of data collection and the parent was not a patient. Since acting-out behavior often decreases with aging, any deviance the grandparents may have shown was more probably long past and recall of it less accurate, particularly since there was no motivation to recall it to explain the parents' behavior.

TABLE 8. THREE GENERATIONS: EFFECTS OF ANTISOCIAL GRANDPARENTS VS PARENTS IN BLACKS AND WHITES

	White sons age 17 by 1959		Black sons age 17 by 1973		Black daughters age 17 by 1973	
	N	(%)	N	(%)	N	(%)
Overall rates	(67)	19	(86)	31	(59)	14
Either grandparent antisocial	(36)	33	(46)	39	(32)	16
Neither grandparent antisocial	(31)	3	(40)	23	(27)	11
Either parent antisocial	(28)	28	(63)	43	(35)	23
Neither parent antisocial	(39)	13	(23)	0	(24)	0

Failure to recall deviance long past should strengthen, rather than reduce, the relationship between grandparents' and their grandchildren's behavior if that relationship depends on the child's being exposed to a *current* example of the grandparents' deviance. But if the mode of effect was indirect—through the grandparents' influence on the parent—forgetting his past deviance should attenuate the relationship.

The relationship between grandparents' and grandchildren's deviance did appear to be more indirect than direct. It will be noted in Fig. 2 that the grandparents' behavior seemed to affect parents' arrests more than grandchildren's delinquency. In addition, when the two best parental predictors were held constant (parents' adult arrests for boys and fathers' arrest history plus mothers' delinquency for girls), the effect of the grandparents' behavior was no longer statistically significant. Thus we infer that the chief influence of the grandparental deviance was to produce antisocial parents who in turn influenced the child, rather than directly affecting the child himself. The effect of the parents on the child, when one controls on whether or not the grandparent was antisocial, remains strong ($p < 0.001$), indicating that the parent's behavior affects his child's whether or not he himself is the offspring of an antisocial parent.



Although we cannot show a statistically significant direct effect of grandparents' behavior on grandchildren's delinquency, the rare cases where both grandparents were antisocial have the highest rate of delinquency (83 per cent) among boys found with any combination of predictors, and a rate for girls (40 per cent) almost as high as when the mother was delinquent. The failure to find a statistically significant direct effect may be due only to the small number of children (11) with two antisocial grandparents.

Like the grandparent's effect, the effect of aunt's or uncle's arrest diminished when the parent's arrest was held constant, but the trend persisted. When a parent had been arrested but the paternal aunts and uncles were law-abiding, 37 per cent of boys and 17 per cent of girls were delinquent, compared with 50 per cent of boys and 30 per cent of girls when an aunt or uncle was also arrested.

(4) *Other family characteristics*

(4) *Other family characteristics*
In addition to the behavior of grandparents and aunts and uncles, we examined other family characteristics that might protect the child from delinquency when both his parents had been arrested (Table 9). We examined the father's job level, which relatives lived in the child's city, broken marriages for parents and paternal aunts and uncles, education of paternal grandparents and paternal aunts and uncles, and

size of the child's sibling group. The only one of these factors significantly related to delinquency for either boys or girls of arrested parents was size of the sibling group. Children with fewer siblings, even when they had two arrested parents, were less likely to be delinquent. This was true of both boys and girls. Children of two arrested parents who had three or more siblings were delinquent in 100 per cent of boys and 50 per cent of girls; with one or two siblings rates were 50 per cent for boys and 22 per cent for girls.

TABLE 9. DELINQUENCY IN CHILDREN OF TWO ARRESTED PARENTS WITH VARYING FAMILY CHARACTERISTICS

	Percent delinquent			
	Boys		Girls	
	N	(%)	N	(%)
Total	(21)	69	(13)	31
Family characteristics				
Relatives in St. Louis				
Paternal grandmother	(14)	64	(11)	36
Paternal grandfather	(5)	100	(2)	100
Paternal uncle	(18)	67	(8)	38
Paternal aunt	(20)	65	(9)	44
High school graduation by relatives				
One or both paternal grandparents	(10)	60	(9)	33
Neither grandparent	(11)	73	(4)	25
Any aunt or uncle	(10)	80	(7)	43
All dropouts	(8)	50	(3)	33
Father's job				
Low	(13)	62	(10)	20
High	(8)	75	(3)	67
Marital stability				
Father's first marriage intact	(0)	—	(2)	0
remarried	(5)	80	(5)	20
divorced or separated	(15)	60	(6)	50
Paternal aunt and uncle				
unmarried or first marriage intact	(2)	100	(2)	0
divorced or separated	(17)	59	(8)	50
Number of siblings				
Two or less	(14)	50	(9)	22
Three or more	(7)	100	(4)	50

One reason having a large number of siblings might have led to delinquency is that it increased the chance of having at least one delinquent sibling. Of children with 1 or 2 siblings over 18, 25 per cent of boys and 31 per cent of girls had a delinquent sibling; of those with 3 or more siblings over 18, 58 per cent of boys and 50 per cent of girls had a delinquent sibling (Table 10). In both small and large families, having a delinquent sibling was associated with being delinquent oneself. Brothers of delinquents were delinquent in 69 per cent of cases in small families and 57 per cent of cases in large families, compared with 21 per cent and 20 per cent respectively when siblings were not delinquent. Sisters of delinquents were delinquent in 18 per cent of cases in small families and 25 per cent of cases in large families, compared with 8 per cent and 0 per cent respectively when siblings were not delinquent. While

there are too few large families in our sample to give us confidence in these results, it looks as though a principal mechanism through which large families encourage delinquency (see West, 1973), may be through increasing the risk of exposure to a delinquent sibling.

TABLE 10. FAMILY SIZE AND DELINQUENCY IN SIBLINGS OVER 18

	Proportion with at least one delinquent sibling			
	One or two siblings over 18		Three or four siblings over 18	
Boys	(51)	25%	(12)	58%
Girls	(35)	31	(8)	50

	Proportion delinquent when			
	One or more siblings delinquent		No siblings delinquent	
	One or two siblings over 17	Three or four siblings over 17	One or two siblings over 17	Three or four siblings over 17
	(13) 69%	(7) 57%	(38) 21%	(5) 20%
Boys	(13) 69%	(7) 57%	(38) 21%	(5) 20%
Girls	(11) 18	(4) 25	(24) 8	(4) 0

DISCUSSION

Methods

This paper introduces a method for investigating the effect of parents' behavior on their children's behavior. We started with a life history interview with a cohort of men whose names had been selected from elementary school records, who were born and brought up in the same city in which they lived as adults, and who had children old enough to have passed through the age of risk for delinquency. We asked the men for their children's names, ages and the children's mothers' names. Armed with these, we located birth dates, school records and police and juvenile court records for fathers, mothers and children. After investigating the relationships between parents' and children's arrest records, we used information obtained at interviews with the fathers to attempt to learn what other family factors might be important in explaining the children's arrests.

Arrest records were chosen over interview data about arrests because they are relatively easy-to-locate objective measures. The cohort design using parents as index cases was chosen in preference to two other ways in which we might have sought the arrest records of two generations: (1) an area survey in which parents of children 18 yr or older would have been interviewed to obtain identifying data with which records for both generations could be sought, or (2) identifying a cohort from school or birth records, as we did, but asking about their parents rather than their children, and then proceeding in the same way we have in this study to locate records of both generations.

As compared with the area survey, the cohort study avoids a number of biases. In area surveys, deviants tend to be missed because they are away from home much of the time, have no fixed residence, or are currently in hospitals or jails. Those parents found at home might avoid mentioning children who are highly deviant. Any method which reduces the availability of deviant cases is obviously undesirable

when studying arrest histories. In our cohort study such biases against deviant parental cases were avoided by identifying the fathers in early school records, before they became deviant, and locating virtually all as adults even when in jail or hospitals. Biases against deviant cases of children were avoided by asking the fathers to identify their children at ages below which those children who eventually became delinquent had usually had their first arrest.

The second alternative, starting with a cohort of children rather than a cohort of parents, does not suffer from the problems of area surveys, but it would have created another problem. The parents of a cohort of children would have grown up in diverse geographical areas. This would have been even more the case for black parents than for whites, because of the large black migration from the rural south to northern cities in the last generation. As a result parents' records would have been hard to locate and less meaningful, since they would have resulted from unequal exposures to risk of arrest. In addition, children would have been less well informed about the birth dates, place of birth, and early addresses of their parents than parents were about their children's, which would have made the parents' positive identification in police records problematical.

The method we did choose required starting with parents who had a range of deviance. Just over half (58 per cent) of the fathers had had an adult police record and 31 per cent had had a delinquency record. Obviously it is not practical to start with parents who are likely to have a very low or very high rate of deviant behavior, since there will be few cases of the opposite type to permit contrasting the effects of deviance with no deviance. In our study, the low level of arrests (27 per cent) and delinquency (16 per cent) in mothers did hamper investigating the mother's effect.

Results

The rates of delinquency we found for boys (31 per cent) is considerably lower than the rate of 50 per cent reported by Wolfgang *et al.* (1972) for a black male school cohort in Philadelphia who reached the age of 18 by 1963. The difference may be largely accounted for by the fact that Pennsylvania law sets the upper age limit of juvenile status at 17, while Missouri law sets it at 16. But there may be other factors as well. Our sample selected fathers born in St. Louis, with I.Q.s of 85 or higher, and oversampled the higher occupations of the grandparents. These three decisions resulted in a sample of children from higher socio-economic statuses than the average black, since the fathers had been educated in urban schools, had good intellectual capacity, and had some family background advantage. This should not mislead the reader into thinking they were mostly middle class. The current occupations of index subjects (which included the fathers of these children) had a median Duncan socio-economic index score of 24, well below the national average of 36, but above the national average for blacks of 21 (Blau and Duncan, 1967, calculated from Table 6.3). The slightly high status of selected children may mean their rates of delinquency were somewhat below average. In Philadelphia, for instance, Wolfgang (1972) found that the delinquency rate dropped to 36 per cent for black boys from higher status families, a rate close enough to our 31 per cent to be explained by our lower cut off age.

It was surprising to find little change in delinquency rates over a generation in

this cohort. To be sure, this was a short generation, since none of the fathers was more than 25 yr of age at the time that a child was born who could meet the age criteria for the study. Nonetheless this does raise questions in the light of widely reported rising delinquency rates. One wonders whether the national rise may not be almost entirely attributable to new groups, becoming at risk of delinquency rather than increases in rates in urban-born blacks, who were already at high risk. Migrants to the cities probably have much higher risks of arrest after arrival than they had had in the rural environments from which they came. In addition, middle class risks may have greatly increased, not only due to marijuana smoking and political demonstrations but because the police may be less likely to overlook delinquency in middle class children as the proportion of the middle class grows. It seems probable that special privilege can be extended to a group only when that group remains small.

We found parental arrests (as juveniles and adults) an extremely potent predictor of children's arrests, even in this high risk population of inner city black children. Parental arrest was as potent for girls as for boys. It has been commonly thought that delinquency, particularly in inner city areas, was chiefly a peer group phenomenon. These findings suggest that at best peer group pressure or imitation may be a necessary but not a sufficient condition to explain delinquency. Conforming parents apparently were able to inoculate their children against enticement into delinquent activities even in the high delinquency areas to which housing segregation confined most blacks.

While the effect of parents' arrests was very striking, explaining 50 per cent of the variance in both boys' and girls' delinquency, there was evidence that the child was not simply re-enacting his parent's behavior. The father's adult arrests were a more important predictor than his own delinquency, suggesting an environmental rather than a genetic effect. It will be possible in future papers to investigate whether amount of exposure to the arrested father was important, since many of these children, particularly those with arrested fathers, grew up in fatherless homes.

Arrests and delinquency in both parents seemed to make a difference in the behavior of children of both sexes. Therefore the mechanism of influence does not seem to be identification with the same-sex parent. However, the scarcity of arrested mothers makes estimates of the effect of the mother's arrests dubious. Future studies might well choose the mother rather than the father as the index parent, so that one could intentionally enrich the proportion of mothers with deviant histories. That plan, however, might result in a dearth of children without arrested fathers, since arrested women seldom have law-abiding mates.

Our efforts to do deviant case analysis, i.e. to find out why some children did not become delinquent even when they had two arrested parents, was not particularly successful. We found some evidence that the extended family in the persons of conforming paternal grandparents, aunts and uncles contributed to a child's chances of avoiding delinquency, but much of the effect appeared to be indirect, i.e. through influencing the parents' behavior. It is difficult to show an effect of any factors in addition to the parents' arrests in our relatively small sample when so much of the variance (50 per cent) was accounted for by parental arrest. A larger sample might make it possible to explore the effects of the extended family in more detail. We did note, however, a small effect not only of the extended family but also of

siblings' delinquency even when we restricted ourselves to children brought up by arrested parents.

The failure to show a large effect of the extended family means that our results so far have not produced clear-cut suggestions for intervention. Enlisting the services of conforming relatives would not seem a powerful enough method to overcome the effects of arrested parents. We plan next to relate school experience to delinquency for these children. Perhaps success in school will be a more powerful explanatory variable than conformity of relatives. If so, educational intervention may appear more clearly advantageous than mobilizing close relatives.

This study of black children has replicated some findings from our previous small study of sons of white child guidance clinic patients and matched controls. In both studies, we found that adult behavior of the parent was a more powerful predictor than his early delinquency. In both we also found that social class as reflected in the father's job made relatively little contribution when the deviance of the parent was taken into account.

In sum, the use of a parental cohort to identify and follow children through the age of risk of delinquency seems to be a feasible way to approach a difficult but important question: Under what conditions is parental deviance transmitted to children? We have yet to show that it produces a blueprint for intervening in that transmission.

SUMMARY

In interviews a cohort of 223 young black urban-born men were asked for names and ages of their children and the children's mothers. Police and juvenile court records were obtained for both parents and all offspring past the age of official designation as a juvenile—145 children of 76 men qualified. A comparison of juvenile records of parents and children showed similar rates and types of offenses. Parental arrest histories were powerful predictors of their children's delinquency. Other family characteristics that might modify the risks of delinquency in children of arrested parents were explored.

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THE RELATION OF DIRECT HOME OBSERVATIONS TO THE CLINIC EVALUATION OF HYPERACTIVE SCHOOL AGE BOYS

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THERE is surprisingly little written on the validity of the psychiatric clinic's behavioral observations of the child, particularly the relation of this data to the "real world" in which the child lives: the relatively unstructured world in which he relates to his parents, siblings and peers. To provide this validation, and to amplify our picture of the hyperactive child's home life, home observation was undertaken as part of an on-going drug study with hyperactive boys seen at the Georgetown University Hyperactivity Clinic over a 3-month period.

Home observation is a technique which has rarely been utilized by the clinician because of its obvious impracticality. Another difficulty has been that the usual heterogeneity of any clinic population has precluded standardization of measurements to be used in the home. This particular study, however, had a relatively homogeneous population of school-age boys, all of whom were referred with the chief complaint of "hyperactivity".

A previous study of play behaviour (Rapoport, 1971) led one of the authors (J.R.) to seek the more naturalistic home observations to relate these to clinic behavioral measures and mother's diaries of home events.

We wished also to relate the clinic assessment of "hyperactivity" to the quality of the child's family and peer interactions. In the clinic evaluations of these boys, a mixture of impulsive, distractible and negativistic behaviors are prominent. These combine to give an impression of "hyperactivity" which mechanical recordings of motor activity usually fail to substantiate. We wished to establish whether the level of these responses seen in the clinic was specific to the demands of structured tasks requiring sustained attention, or held stable for the home setting also.

SUBJECTS

The subjects used in this study included 20 boys ranging in age from 6 to 12 yr (mean = 8.25, *s.d.* = 1.77). Fifteen were referred by the school, 3 by pediatricians, and 2 through other patients.

The prerequisites for inclusion in the drug study at the Hyperactivity Clinic were: restless and impulsive at home and school were the chief reasons for seeking clinic help; no current severe stress in the family, such as recent divorce, separation,

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or serious illness; a full scale WISC I.Q. of 80 or above; no known physical or neurological disease or psychosis and no known convulsive disorder.

All of the patients had had restlessness, distractibility, or impulsivity present for at least 2 yr; these symptoms had not arisen in relation to separation, or loss, or adverse family events. Following the suggestion of Fish (1971) the children were subdivided into three diagnostic groups: 5 patients were diagnosed as Unsocialized Aggressive Reaction, exhibiting negative, hostile behavior of sufficient concern almost equal to that related to restlessness and distractibility. Four boys received the diagnosis of Overanxious Reaction, because of the presence of worries and feelings of inferiority. The remaining 11 boys were classified as Hyperactive Reaction, because of their restlessness, distractibility, and immature, labile behavior.

More specific details of the selection process and patient population are described elsewhere (Quinn and Rapoport, 1974; Rapoport *et al.*, 1975). The sample was a middle-class group living in the Washington suburban area.

METHOD

The twenty subjects were selected for home observation on the basis of geographic accessibility of their home. No one refused a home visit. The observer obtained the names, ages, address and telephone numbers of the subjects by telephone from the clinic, without knowledge of these children, except that they were being evaluated at the Hyperactivity Clinic. When mothers were contacted, they were instructed not to discuss any aspects of the child's behavior.

During the 1-hr home visit, both mother and child had to be present. Friends and siblings were free to be present. Of the 20 subjects visited, only 2 were without company at the time of the visit, which was usually made during after-school hours. A few visits were made on weekend days. The subject knew the observer's identity and was free to spend time indoors or outdoors, with the restriction that he remain within an area where mother and observer could see him. The observer was allowed to go to any part of the house where it was necessary to observe the subject.

Prior to the home visit each subject had had a pediatric and neurological evaluation, psychological testing and a playroom interview with a child psychiatrist. Mothers had completed the Parent Symptom Questionnaire (Conners, 1970), and the teacher had also completed the Teacher Rating Scale (Conners, 1969). At the time of the home visit the mother was in the process of compiling a pre-drug 4-day diary of the child's behavior and activities, utilizing an hourly "Day in Review" modified from Waldrop and Halvorsen (1973).

Three observations were recorded during the hour visit: (I) number of negative interactions with parents, peers, siblings and property, e.g. subject kicking apart a puzzle just completed by sister, refusing to do a task requested by mother; (II) number of spontaneous activity shifts, e.g. shifts in goals of play: for example, change from building a block house to throwing blocks into a waste-basket; (III) global, subjective rating of "hyperactivity" assigned on a five-point scale based on (I and II) above—this system had yielded inter-rater reliabilities of 0.80 or above in a previous study of play behavior with 20-min observation periods (Rapoport *et al.*, 1971). No attempt was made to describe the child's behavior in detail—a

negative interaction or activity change was briefly noted on a 4 × 6 in. piece of paper. Short comments were entered concerning aggressivity, passivity, hostility, loudness of child's voice, amount of speech, bodily movements, or any characteristic which was impressive to the observer.

Clinic playroom behavior was scored by the examining psychiatrist (J.R.), using the method described previously (Rapoport *et al.*, 1971).

A Teacher Rating Scale (Conners, 1969), with Factor I (conduct problem), containing items about quarrelsome and destructive behavior, and Factor IV (hyperactivity), with items of fidgety, distractible behavior, was completed for each subject in the pre-drug period.

In summary, the, then sources of data were (I) home observation, (II) psychiatric playroom observation, (III) psychologist's behavior rating, (IV) Teacher's Rating Scale, (V) Parent Symptom Questionnaire and (VI) mothers' diaries. The range, means and standard deviations for the home and clinic measures are given in Table 1.

TABLE 1. RANGE, MEAN AND *s.d.* FOR SCHOOL, CLINIC AND HOME OBSERVATIONS DATA FOR THE PATIENT SAMPLE (*n* = 20)

	Range	Mean	<i>s.d.</i>
Clinic			
Playroom "global"	1- 6	3.93	1.43
Psychologist			
Limit setting	0- 7	3.95	1.88
Activity	1- 7	4.63	1.52
Teacher rating scale			
Factor I—conduct problem	2-29	12.94	10.36
Factor IV—hyperactivity	6-18	11.65	5.01
Parent symptom questionnaire			
Factor I—conduct problem	2-16	8.85	3.70
Factor III—hyperactivity	6-21	14.28	4.03
Parent diaries			
Activity shifts	4-30	12.52	9.85
Negative interactions	0-18	4.07	6.73
Global ratings	1- 5	2.43	1.73
Home observations			
Activity shifts	4-35	13.60	8.09
Negative interactions	0-19	5.75	1.34
Global ratings	1- 5	1.85	1.52

RESULTS

The observer felt that she was well received by all but one family. Though motor activity *per se* as an expression of the hyperactivity syndrome is thought to be age-related, in the 20 subjects observed we did not find age to be a significant factor ($r = 0.17$). The observers' global hyperactivity rating correlated about equally with both negative interactions and activity shifts ($r = 0.71$ and 0.86 , respectively).

Environmental stimuli did not seem to play a part in provoking hyperactive behavior in our sample. Of the 20 homes visited, 19 were felt to be calm and or-

ganized in atmosphere. Though it was not our intention to score mothers' activity or "provocativeness", 2 mothers did impress the observer with these two qualities—one moved about frenetically and the other had a quality of being "innately over-stimulating"; the children of both mothers were among our highest scorers in global hyperactivity. However the mothers of 2 other children who were high scorers were considered quiet and passive in their manner. In the single home which appeared to be highly structured, the father had had a military career and the family adhered to the very strict rules concerning the use of the various rooms of the house. The subject observed in this home situation was a low scorer in all our categories.

Each behavioral rating score was plotted and the distribution did not deviate from normality. Product-moment correlations were obtained between the home observations and the other measures.

We were impressed by the degree to which clinic observations did relate to home observations, particularly for global ratings and ratings of negativistic behavior. As shown in Table 2, the global playroom ratings and global home observation

TABLE 2. CORRELATION OF HOME AND CLINIC BEHAVIORAL OBSERVATIONS OF BOYS ATTENDING THE HYPERACTIVITY CLINIC ($n = 20$)

Home observations	Clinic assessment							Mother's diaries (global score)
	Playroom (global rating)	Psychologist set limits	Activity	Conners		Conners		
				Teacher's scale		Parent's score		
				I Behavior	IV Activity	I Conduct	III Hyper-activity	
Activity shifts	0.35	0.46	0.34	0.36	0.53*	0.22	0.24	0.46*
Negative interactions	0.40	0.67***	0.43	0.49*	0.48*	0.36	0.30	0.31
Global ratings	0.57**	0.64***	0.53*	0.49*	0.55**	0.20	0.03	0.59**

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

correlated significantly ($r = 0.57$) ($p < 0.01$). The psychologist's limit setting during testing correlated significantly with the number of negative interactions observed at home ($r = 0.67$) ($p < 0.001$) and the home observer's global hyperactivity score.

Teacher's ratings and home observations also correlated surprisingly well. The frequency of home negative interactions and Factor I of the teacher's scale (conduct problem) correlated significantly ($p < 0.05$); and the home observer's global assessment of hyperactivity and the teacher's Factor IV on the Teacher's Rating Scale correlated at a 0.01 level of significance.

Home global hyperactivity ratings and the mother's diaries demonstrated a correlation of $r = 0.57$, ($p < 0.01$). However, the Conners Parent Questionnaire scores for Factors I (conduct problem) and III (hyperactive behavior) did not correlate significantly with the direct home observations.

The Parent and Teacher Questionnaire ratings for Factor I (conduct) did correlate significantly ($r = 0.49$, $p < 0.05$). However, the parent scale for hyper-

activity (Factor III) and the hyperactivity factor on the teacher's scale (IV) did not correlate significantly ($r = 0.18$). The teacher rating scale scores and parent diary scores also correlated significantly for ratings of negativism (i.e. for Factor I of the TRS and the diary score of negative interactions $r = 0.57, p < 0.01$); however, the correlation between Factor IV (hyperactivity) and PSQ Factor III (hyperactivity) was not significant ($r = 0.20$).

These results indicate a greater agreement for *negativism* than for ratings of restlessness, whether scored by mother for a 4-day period with the diary or over a 1-month period as requested by the Parent Symptom Questionnaire.

Four post-drug treatment home visits were made and in this small sample, home observations did tend to corroborate clinic evaluations; 2 of the 4 subjects were independently considered improved and 2 unchanged by both the clinic and the home observer. One subject who, at the time of the first visit had demonstrated high distractibility (as deduced from the very large number of activity changes) spent most of the hour at the time of revisit working at one task. He was also less aggressive and hostile, was cooperative and even affectionate.

DISCUSSION

The high correlation of global ratings of "hyperactivity" with both negative interactions and activity shifts supports the findings of Kupietz *et al.* (1974): that "hyperactivity" is not an independent factor from negativism.

The significant correlations obtained from our data indicate that our clinic evaluations do correspond in a general way to home behavior. In his article dealing with the psychiatric interview of the child, Rutter's high inter-rater reliability suggests that "children behave sufficiently similarly at different interviews" (Rutter, 1968), although, like the present study, global ratings correlated better than ratings of individual behavioral items. More specifically, the work of Thomas *et al.* (1968) of individual behavioral items. More specifically, the work of Thomas *et al.* (1968) with a normal population showed activity and distractibility to be stable characteristics in young children with a wide variety of measurements, and there is some evidence that this is also true for that subgroup later defined as a psychiatric population (Chess *et al.*, 1963).

Our behavioral assessment, using multiple sources, suggests to us that not only do children behave sufficiently similarly in identical settings, but that the essence of that behavior remains sufficiently stable so that it emerges the same in the structured as well as the relatively unstructured setting (home), and is not simply a by-product of an attentional difficulty during specific tasks. We entertained the possibility that the mere presence of an observer may provide some degree of structuring to the child's home environment, and that this could account for the high level of correlation between home and clinic observations. But the fact that our home observations corresponded to the mothers' four-day diaries would tend to refute that idea.

Though mothers' diaries and home and clinic observations correlated well, ratings of Parent's Questionnaires (Conners, 1969) did not. The difference between the two may be due to the fact that, unlike professionals, parents lack a frame of reference by which to judge whether in a particular area of behavior their child's

performance is "just a little", "pretty much", or "very much"; while the task in the diary was to record more descriptive observations. Another factor that may affect the parent questionnaire ratings is maternal defensive or reactive tendencies to the questionnaire judgments. The fact that they did better with the diaries in which they supplied more descriptive data about the child's day-to-day behavior indicates that the best method of clinic behavioral assessment must be a combination of some sort of descriptive report from the mother and certain standardized observations by the clinic staff.

When one considers that the home observer's ratings compared well with the diaries of 20 different mothers, our findings take on even added significance. The Conners Teacher Rating Scale was completed by 20 different teachers in 20 different schools, and even with the variabilities inherent in such a sample, our home observation data did achieve a significant correlation ($p < 0.02$) with the teachers' reports.

Naturalistic observation presents the observer with a selection that is disorderly, unpredictable and uncertain. We feel that the "strength" of our home observation data lies in the fact that we selected for recording, prior to making the home visit, those categories of behavior which would be most relevant to the complaints of "hyperkinesis", i.e. the frequency of activity changes, number of negative interactions and a global hyperactivity rating which would encompass the two categories already mentioned. The patients referred to a "hyperactivity" clinic present a mixture of antisocial, negative, distractible and restless behavior which have some degree of independence. It is these behaviors rather than any simple activity which the clinician actually evaluates.

The psychologist's behavior rating which was a measure of her *own behavior* as it was affected by the child in the testing situation indicates the strength of the effect the child's behaviour has on the adult. Home observations allowed us to see, not only this behavior in its actuality, but also the child's interactions with siblings and peers. Our highest scorer's family, for example, constantly submitted to his wishes, seemingly in an effort to avoid unpleasantness.

We are not able to provide a control group for comparison home observation because of the logistical problems in obtaining such a sample. This data, therefore, cannot be interpreted as certifying "abnormal" home behavior for our population, but merely supporting the stability of clinic observations. However, the three lowest scores on the home visits were the only three in the sample who were independently diagnosed by the clinic as having primarily the symptom of distractibility or an unsatisfactory school setting rather than motor restlessness.

Our data also indicate that mothers' diaries, rather than questionnaires, can be a valuable tool to be used in assessing a child's behavior. We agree with Werry's statement (Werry, 1968) that "... A meaningful assessment (of the hyperactive child) ... would require detailing (a) individual troublesome behaviors in *their particular settings* as they occur throughout the day and (b) the response of significant persons (parents, teachers, peers) to these behaviors." This work supports the concept of "Hyperactivity", in a general sense encompassing distractibility, impulsivity and negativism, as a stable factor as evaluated in our clinic, with some prediction for behavior in unstructured settings. It does not tackle the controversial

question of whether such a clinical group deserves separate diagnostic status.

SUMMARY

The relation between clinic behavioral measures and direct home observations was examined as part of the evaluation of twenty hyperactive grade school boys. During 1-hr home visits, frequency counts of shifts in activity, negative interpersonal interactions, and global estimates of "Hyperactivity" were made. These were correlated with teacher and parent rating scales, 4-day diary reports by the mothers, and with psychiatric playroom and psychologist behavior ratings.

The home observations correlated significantly with psychologist's reports as well as with teacher ratings of classroom behavior problem and hyperactivity. These results indicate the validity of some clinic measurements and support the concept of "hyperactivity" as a pervasive, stable characteristic of these children not limited to structured settings.

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EFFECTS OF DIFFERENTIAL REMOVAL FROM GROUP ON SOCIAL DEVELOPMENT OF RHESUS MONKEYS*

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STUDY of the consequences of disruption of social attachment bonds in monkeys has broadened considerably during the past decade. Early investigations utilized mother-infant separation of macaques primarily to determine the strength of mother-infant attachment bonds (Seay *et al.*, 1962; Jensen and Toleman, 1962; Hinde *et al.*, 1966). Subsequently other workers noted the similarity of reaction to maternal separation between monkey infants and human infants diagnosed as anaclitically depressed (Spitz, 1946; Bowlby, 1960), then postulated that maternal separation might serve as a basis for a monkey model of depression (Kaufman and Rosenblum, 1967; McKinney and Bunney, 1969; Harlow *et al.*, 1970). Additional researches disclosed a number of variables affecting the nature of infant reaction to maternal separation, including species of subject (Kaufman and Rosenblum, 1969; Preston, Baker and Seay, 1970; Schlottmann and Seay, 1972), mother-infant relationship prior to separation (Hinde and Spencer-Booth, 1970), form of separation (Seay and Harlow, 1965), duration of separation (Hinde and Spencer-Booth, 1967), age at separation (Suomi *et al.*, 1973) and nature of social environment following separation (Hinde and Davies, 1972; Suomi, Collins and Harlow, 1973).

Disruption of attachment bonds other than those exclusively involving mothers and infants has also been studied. For example, Rosenblum and Harlow (1963) forcibly separated infants from artificial surrogate mothers and observed increased attraction for the surrogates following separation. Suomi, Harlow and Domek (1970) reared infants either without mothers but with peers or with both mothers and peers, then subjected the infants to repeated 4-day peer separations. They found that the infants' reactions to the peer separations were virtually identical to those of maternally-separated infants exhibiting anaclitic depression. Further, the infants did not adapt to the repeated separations, and throughout the study normal behavioral maturation was severely arrested. Subsequent researches disclosed that juvenile-aged subjects exhibited considerably more moderate reactions to peer separations (McKinney *et al.*, 1972; Bowden and McKinney, 1972), suggesting that age of separation was a crucial variable in determining severity of response to peer separation.

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Additional work has been directed toward exaggerating the reaction of infant monkeys to peer separation and has involved an isolation apparatus designed by Harlow and termed the vertical chamber. The apparatus, illustrated in Fig. 1 and fully described by Suomi and Harlow (1969), is basically a stainless steel trough with sides sloping inward toward a narrow bottom. Previous research had indicated that

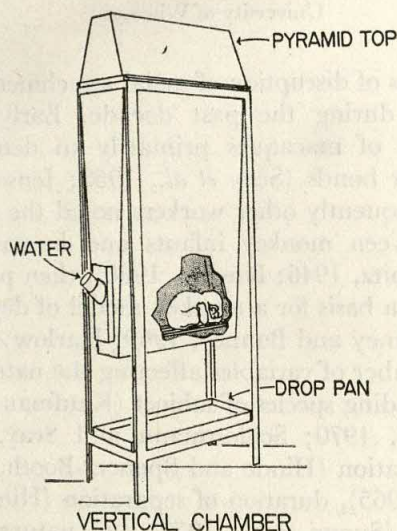


FIG. 1. The vertical chamber apparatus.

socially unsophisticated monkeys (i.e. with no prior social experience), confined at least 1 month in the chamber, exhibited subsequent behavior patterns mimicking the depressive syndromes shown by monkeys following maternal or peer separation (Harlow and Suomi, 1971; Suomi and Harlow, 1972), despite the fact that no disruption of social bonds was involved. When chamber housing was combined with social separation, i.e. when monkeys were confined in vertical chambers rather than housed in standard cages during periods of social separation, it was found that their reactions to separation were intensified significantly (Suomi, 1973).

The present research was designed to further investigate the effects of social separation and vertical chamber housing on rhesus monkey behavior. Monkeys reared from birth in groups of four for 120 days were removed from the group for 4 weeks then returned to the group one at a time until all group members had been individually separated. When apart from the group each subject was individually housed in either a standard cage or in a vertical chamber. A group of control monkeys remained intact throughout the study. A primary purpose of the investigation was to determine the cumulative effect of the removals on group social and nonsocial behavioral development.

METHOD

Subjects

The subjects were 16 rhesus monkeys (*Macaca mulatta*), 8 males and 8 females, each assigned at birth to one of four groups: Vertical Chamber-Removed 1 (*V-1*), Vertical Chamber-Removed 2 (*V-2*), Separation-Removal (*Sp*) and Nonremoved Control (*C*). Each group consisted of 2 males and 2 females, all born within a 3-week period. All subjects were separated from their mothers at birth and subsequently reared in the laboratory nursery according to the procedure described by Blomquist and Harlow (1961). When 30 days of age, each subject was given a simplified surrogate (Harlow and Suomi, 1970) and placed in an individual $2.5 \times 2 \times 2.5$ ft quadrant of a $5 \times 4 \times 2.5$ ft quad cage (Suomi and Harlow, 1969) housing its fellow group members. Group members were subsequently permitted 10 hr of mutual social interaction per week, 6 of which took place in three 2-hr sessions in a social playroom (Rosenblum, 1961) and the remaining 4 of which occurred in two 2-hr sessions within the quad cage. Subjects spent the remainder of each week housed with their surrogates within their individual quadrants.

Procedure

When the mean age of each group was 120 days, the following procedure was initiated.

Groups V-1 and V-2. One group member was removed from the quad cage and placed in a vertical chamber (Suomi and Harlow, 1969) in another room for a period of 28 days. During this period the remaining group members continued to receive 2 hr of social interaction 5 days per week as above. Following chamber confinement the first subject was returned to the quad cage, and social interaction was continued as before for a period of 2 weeks. At this time a second subject was removed and placed in a vertical chamber for a period of 28 days, returned for 2 weeks, etc. This procedure was continued until all four group members had each spent 28 days confined in the vertical chamber. After the last subject had been returned to the group for 14 days, the subjects were given an additional 2-week period of social interaction as above. At this point the mean age of the subjects was 350 days. Order of subject chamber confinement within each group was randomly determined.

Sp Group. Members of the *Sp* group were subjected to a procedure identical to that of groups *V-1* and *V-2* with one exception. Individual monkeys when removed from the group spent their 28 days of separation in a $2.5 \times 2 \times 2.5$ ft wire-mesh cage in another room, rather than confined in a vertical chamber. Order of separation among subjects was randomly determined.

C Group. Members of the *C* group were not subjected to group removals of any kind. Rather, they continued to receive 2 hr of social interaction with each other 5 days per week as above until they were 350 days of age.

In summary, all subjects were separated from their mothers at birth and reared identically for the first 120 days of life. Each member of groups *V-1* and *V-2* was subsequently confined to a vertical chamber for 28 days prior to 336 days of age, while each member of the *Sp* group was confined to a bare wire cage for 28 days within the same chronological period. Members of the *C* group continued to be reared as they had been for the first 120 days of life.

Data collection

Beginning at 30 days of age each subject was observed for two 7.5-min sessions 5 days per week. One observation was made while the subject was in its individual quadrant, the other when the

TABLE 1. DESCRIPTION OF BEHAVIORAL CATEGORIES

Self-mouth—oral contact to own body
Self-clasp—clasping of any part of own body with hand(s) and/or foot (feet)
Locomotion—any self-induced change in physical location of self
Exploration—tactual and/or oral manipulation by subject of inanimate objects, for example, towel, toy, cage lock, etc.
Partner cling—contact of own ventral body surface with another subject's
Play—any type of socially directed play activity (including rough and tumble, approach—withdraw, and noncontact-type play)

subject was in its particular social interaction session. Observation was continued as above until each subject was 350 days old, with two exceptions. First, members of groups *V-1* and *V-2* were not observed when confined in vertical chambers. Second, members of the *Sp* group were observed only once daily when separated and housed in single cages.

During each 7.5-min observation session, frequency and duration of subject behaviors falling into each of 6 behavioral categories were recorded by one of five experienced observers, each of whom had previously been trained to a rigorous laboratory reliability criterion. A description of the behaviors encompassed by each behavioral category is listed in Table 1.*

Observations took place between the hours of 9:00 A.M. and 4:30 P.M., with homecage behaviors observed in the A.M. and playroom interactions obtained in the P.M. Each observer recorded approximately one-fifth of the total number of observations. Order of testing between and within subject groups was randomly determined.

Data analysis

The data were analyzed for the purpose of determining (a) the extent of group differences in behavioral levels prior to the separation and/or chambering manipulations, (b) the nature of subject responses to these removals, and (c) the extent of group differences in behavioral levels following the removals and reunions. For the sake of brevity only a portion of the entire analysis will be presented, omitting all data derived from quad cage interactions, and all frequency data. The complete analysis is fully described by Suomi (1971) and is available from the authors upon request.

In order to determine premanipulation differences between groups, homecage observations of each subject were summed by category over three 30-day time blocks: 30-60, 60-90 and 90-120 days of age. Then, for each subject, a mean was calculated for each behavior for each time block, representing the average number of hundredths of minutes per 7.5-min observation session that behaviors encompassed by the category were recorded. For each category a two-way repeated-measures analysis of variance was performed on the above means, with experimental group as the independent variable and time block as the repeated measure, and for those categories whose analyses had yielded significant ($p < 0.05$) main effects and/or interactions, Duncan tests (Duncan, 1955) were subsequently applied to the appropriate means. Identical analyses were performed on playroom scores recorded during the first 120 days of each subject's life.

Next, in order to determine the effect of removal from group, comparisons were made for each subject between behavior recorded during the 2-week period immediately prior to removal and behavior recorded during the 2-week periods following return to the group when the group itself was intact. Due to individual differences among subjects and to the fact that subjects were removed from their group at different ages, it was decided to treat each subject's preremoval mean for each category analyzed as a 0-point and to analyze its subsequent mean scores as deviations from baseline. For each subject in group *V-1*, *V-2* and *Sp* the following procedure was initiated: the scores for each category from both the home-cage and the playroom observations over the 2-week period immediately preceding removal from the group were summed and means calculated. Then, for each of the 2-week periods that the group was intact following the subject's return, similar means were calculated and subtracted from the above baselines, yielding mean deviations from baseline for each 2-week period. For each subject in the *C* group the mean deviation from the 4-month baseline was calculated for each 2-week period corresponding chronologically to the 2-week periods when the other groups were intact. A direct comparison of each set of deviation scores was then made between members of both chambered groups and the *C* group, and between members of the *Sp* group and the *C* group, utilizing nonparametric Mann-Whitney *U* tests (Mann and Whitney, 1947).

Finally, to compare group levels of behavior throughout the study, subject means for each category in both the home-cage and playroom situations were calculated over six time blocks: the pre-removal baseline period of 106-120 days, each of the four 2-week periods during the removal sequence

* Other categories were employed but not included in the data analysis, and hence are not described here. Determination of categories to be formally analyzed resulted from a preliminary scanning of the data. Categories which were infrequently observed, i.e. less than once per session per group, were not analyzed, nor were categories which yielded enormous individual variation between and within subjects.

when groups *V-1*, *V-2* and *Sp* were intact, and the final 2-week baseline period, with each mean representing the average number of hundredths of minutes per 7.5-min observation session during which behaviors encompassed by the category were observed. A two-way repeated-measures analysis of variance was performed on the means for each category in both the homecage and playroom situations, with experimental group as the independent variable and time block as the repeated measure. Subsequent Duncan tests were performed on the appropriate means as described above.

RESULTS

The results of the present research indicated that although members of all subject groups showed similar and appropriate levels of behavior prior to subject removal, clear group differences emerged as various group members were removed and returned. Individuals removed from their social group showed lower levels of

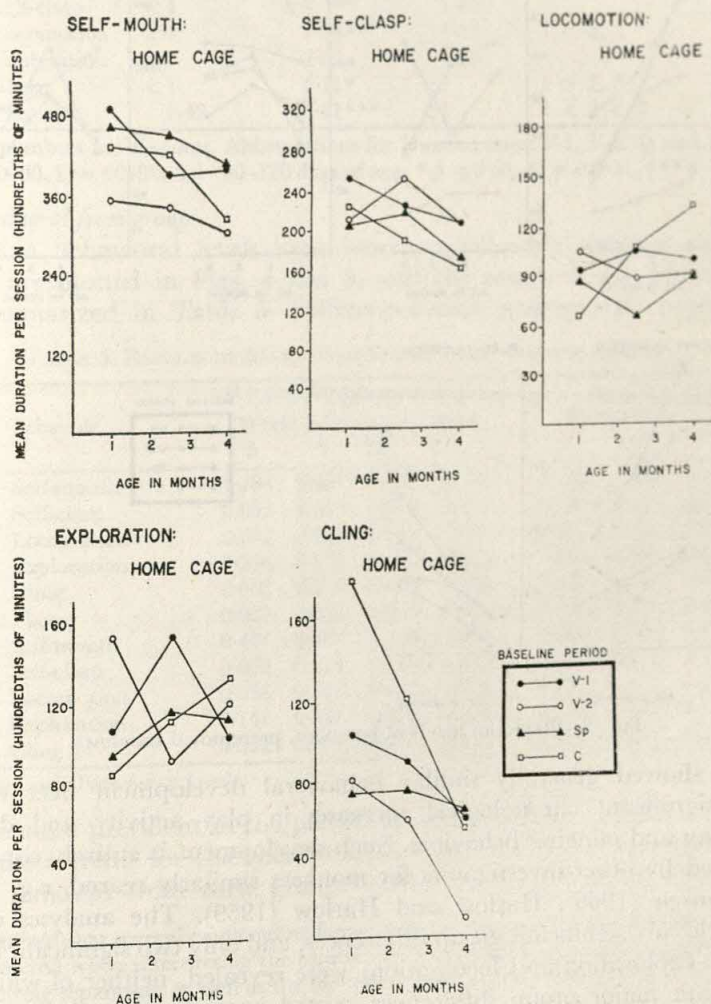


FIG. 2. Home-cage levels of behavior, preremoval baselines.

locomotive and play activity and higher levels of self-clasping and clinging behaviors following reunion than the nonseparated control subjects. Differences from control subjects were generally more pronounced for chamber-removed monkeys than for those separated but not chambered. By the end of the study the monkeys in the removal groups were behaviorally inferior to control monkeys, particularly with respect to play behaviors.

Preremoval baselines

Behavioral levels recorded for subjects during the first 120 days of life are plotted in Figs. 2 and 3. The results of data analyses, summarized in Table 2, suggest that

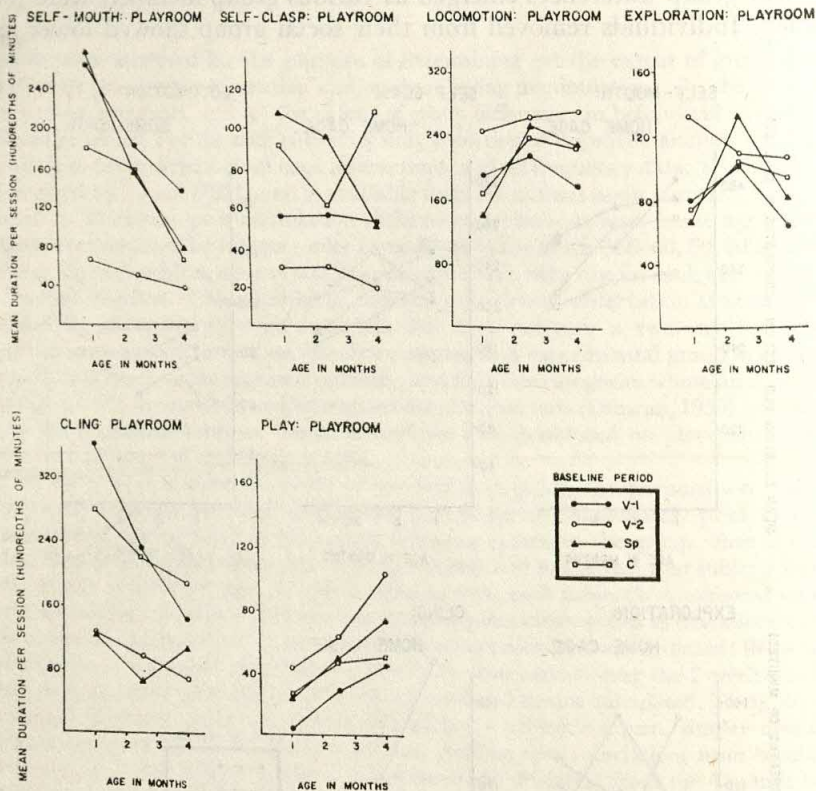


FIG. 3. Playroom levels of behavior, preremoval baselines.

all groups showed generally similar behavioral development over this period, including significant chronological increases in play activity and decreases in self-mouthing and clinging behaviors. Such development is entirely consistent with that reported by other investigators for monkeys similarly reared, e.g. Rosenblum (1961), Hansen (1966), Harlow and Harlow (1969). The analyses of variance failed to yield any significant group differences, and only two significant interactions (home-cage exploration and locomotion) were revealed, neither of which strongly indicated that major group differences existed immediately prior to subsequent subject removal.

TABLE 2. RESULTS OF ANOVA's AND DUNCAN TESTS, PREREMOVAL BASELINE PERIOD

	Category	Group (<i>d.f.</i> =3/12)	Time block (<i>d.f.</i> =2/24)	<i>G</i> × <i>T</i> (<i>d.f.</i> =6/24)	Duncan test*
Home-cage Behaviors	Self-mouth	< 1	12.86***	1.39	3 < 1, 2
	Self-clasp	< 1	2.34	< 1	—
	Locomotion	< 1	3.24	4.90**	<i>C</i> -3 > <i>V</i> -1-3, <i>V</i> -1-1, <i>V</i> -2-2, <i>V</i> -2-3, <i>Sp</i> -3, <i>C</i> -1, <i>Sp</i> -2 <i>C</i> -1, <i>Sp</i> -2 < <i>V</i> -1-2, <i>V</i> -1-3, <i>V</i> -2-1, <i>Sp</i> -3, <i>C</i> -2
	Exploration	< 1	< 1	10.72***	<i>V</i> -1-2, <i>V</i> -2-1 < all others <i>C</i> -1 > <i>V</i> -2-3, <i>Sp</i> -2
	Cling	2.35	9.21**	1.43	3 < 1, 2
	Play	1.42	13.11***	< 1	1 > 2 > 3
Playroom Behaviors	Self-mouth	1.32	13.31***	1.33	1 > 2 > 3
	Self-clasp	< 1	< 1	1.40	—
	Locomotion	< 1	7.26**	1.47	1 < 2, 3
	Exploration	< 1	2.65	1.36	—
	Cling	< 1	5.11*	< 1	1 > 2, 3
	Play	1.42	13.11***	< 1	1 < 2 < 3

Note. Tabled numbers are *F*-scores. Abbreviations for Duncan tests: *V*-1, *V*-2, *Sp* and *C* are subject groups, 1 = 30–60, 2 = 60–90, 3 = 90–120 days of age. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Responses to removal from group

Changes in behavioral levels from baselines following removal and reunion with group are plotted in Figs. 4 and 5, and the results of the Mann-Whitney tests are summarized in Table 3. Differences with nonremoval control subjects

TABLE 3. RESULTS OF MANN-WHITNEY *U*-TESTS, REMOVAL PERIOD

		<i>V</i> -1 and <i>V</i> -2 groups vs <i>C</i> group				<i>Sp</i> group vs <i>C</i> group			
Behavior		Weeks following reunion				Weeks following reunion			
		2	6	10	14	2	6	10	14
Playroom	Self-mouth	0.184	0.467	0.381	0.243	0.100	0.343	0.429	0.133
	Self-clasp	0.002	0.014	0.005	0.014	0.343	0.343	0.429	0.600
	Locomotion	0.002	0.002	0.005	0.014	0.171	0.171	0.114	0.267
	Exploration	0.556	0.467	0.305	0.557	0.343	0.443	0.200	0.267
	Cling	0.002	0.019	0.033	0.343	0.029	0.057	0.571	0.600
	Play	0.002	0.002	0.005	0.014	0.014	0.343	0.200	0.067
Home-cage	Self-mouth	0.404	0.404	0.238	0.054	0.343	0.100	0.429	0.400
	Self-clasp	0.002	0.024	0.176	0.029	0.557	0.443	0.314	0.133
	Locomotion	0.036	0.141	0.157	0.557	0.057	0.171	0.200	0.133
	Exploration	0.141	0.341	0.176	0.343	0.171	0.443	0.200	0.600
	Cling	0.002	0.024	0.077	0.171	0.171	0.557	0.314	0.400
	Play	0.002	0.024	0.077	0.171	0.171	0.557	0.314	0.400

Note: Tabled numbers are *p* levels.

tended to be more prevalent in the playroom situation than in home-cage testing and were more extreme for chamber-removed subjects than for subjects housed in cages when removed from their group.* Over time control subjects exhibited

* It is recognized that several confounding factors exist with respect to this form of analysis and should be considered when interpreting the results. These include the obvious confounding of age and weeks following separation as well as the fact that twice as many subjects in the chamber condition were compared with controls as in the *Sp* condition, resulting in differential power between the two comparisons.

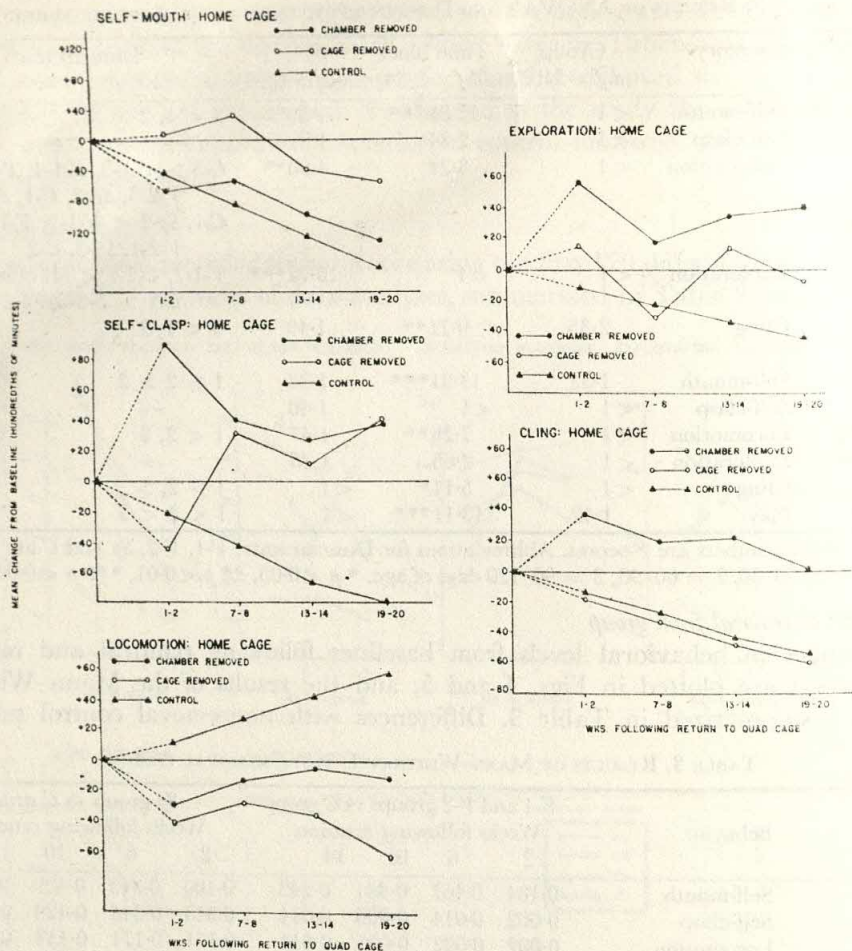


FIG. 4. Home-cage deviations from baseline levels.

decreases in both home-cage and playroom levels of self-mouthing, self-clasping, and clinging, increases in locomotion and play, and slight changes in exploratory behavior, again consistent with findings of previous investigations of monkeys similarly reared. In contrast, chamber-removed subjects in both test situations showed increases in clasping and clinging behavior and decreases in locomotive and play activity. Differences between members of the *Sp* group and control subjects were far less pronounced and persistent. In fact, no significant differences from controls were disclosed in the analysis of home-cage behaviors, and only differences in cling and play immediately following reunion achieved significance among playroom behaviors. Such discrepancies between simple separation and vertical chamber housing in severity of reaction to removal from group are consistent with Suomi's (1973) findings.

Group differences in behavioral development

The analyses of overall group behavioral levels revealed that while members of

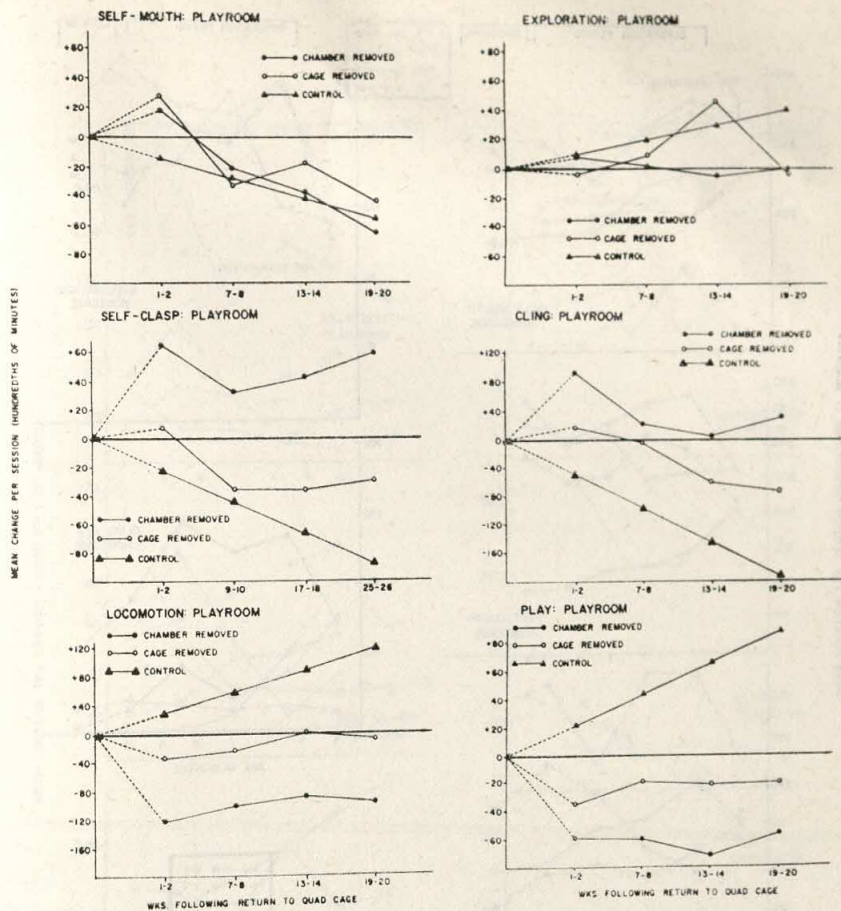


FIG. 5. Playroom deviations from baseline levels.

the *C* group continued to exhibit appropriate behavioral development, groups *V-1*, *V-2* and to a lesser extent *Sp* showed a steady deterioration as their individual members were successively removed from and returned to their groups. Figures 6 and 7 illustrate these findings graphically, while summaries of the analyses of variance are given in Table 4.

Home-cage analyses indicated that self-mouthing decreased and exploration increased over time for all groups. On other measures, the groups differed in levels of behavior. Control group members self-clasped less than the other monkeys and increased their locomotion over time while the other groups either decreased or stayed relatively constant with respect to prerule removal baselines. Clinging decreased over time for all groups, although members of *V-1* were consistently higher in clinging levels than other subjects.

Results not vastly different were yielded by the playroom analyses. Self-mouthing tended to decline in the *C* group, remain relatively constant in the *Sp* group, and increase slightly in groups *V-1* and *V-2* over time. Self-clasping appeared to decrease

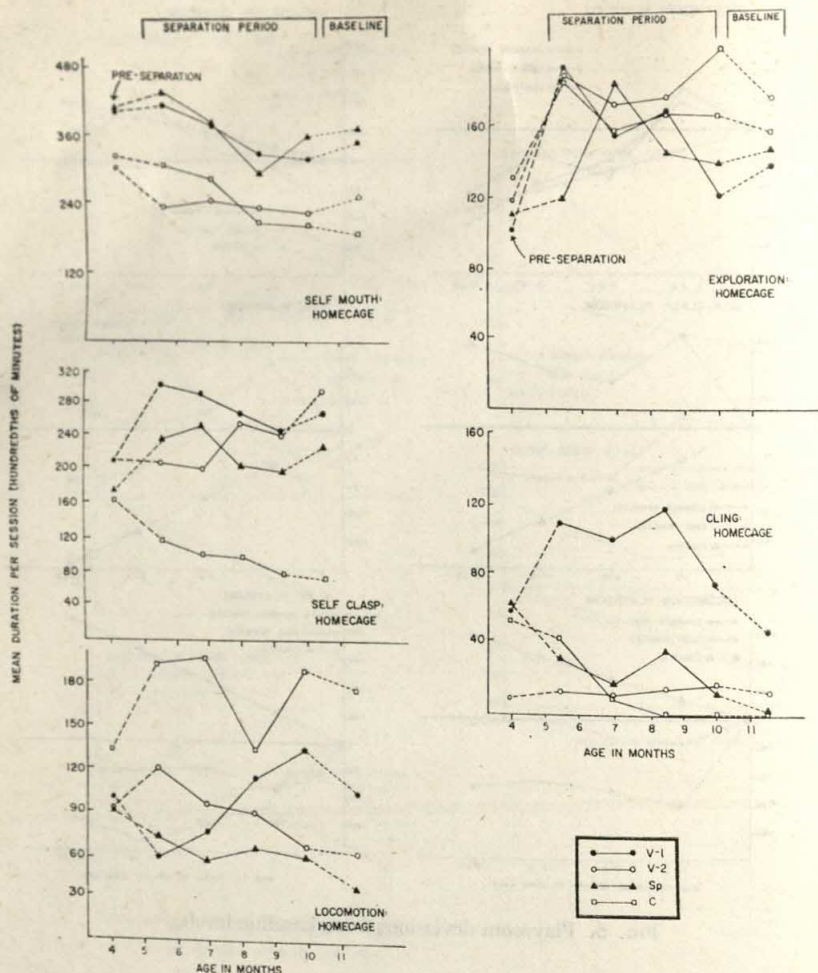


FIG. 6. Home-cage levels of behavior following removals.

from baseline in groups *C* and *Sp* while increasing, if anything, in both chamber-removed groups. The opposite pattern was disclosed by the analysis of locomotion scores. Levels of clinging increased over baseline among *V-1* group members but decreased for most other subjects. Finally, *C* group members increased their play behavior with maturation, *Sp* group members tended to remain at baseline levels, while members of the two chamber-removed groups exhibited a decline in levels of play activity over the course of the experiment.

These analyses indicated that generally levels of behavior among groups *V-1*, *V-2* and *Sp* deviated from those of the *C* group more and more as group members were successively removed from and returned to their home environment. The data further showed that chamber-removed group members exhibited a greater degree of behavioral disintegration than the monkeys who were housed in standard laboratory cages during their terms of separation.

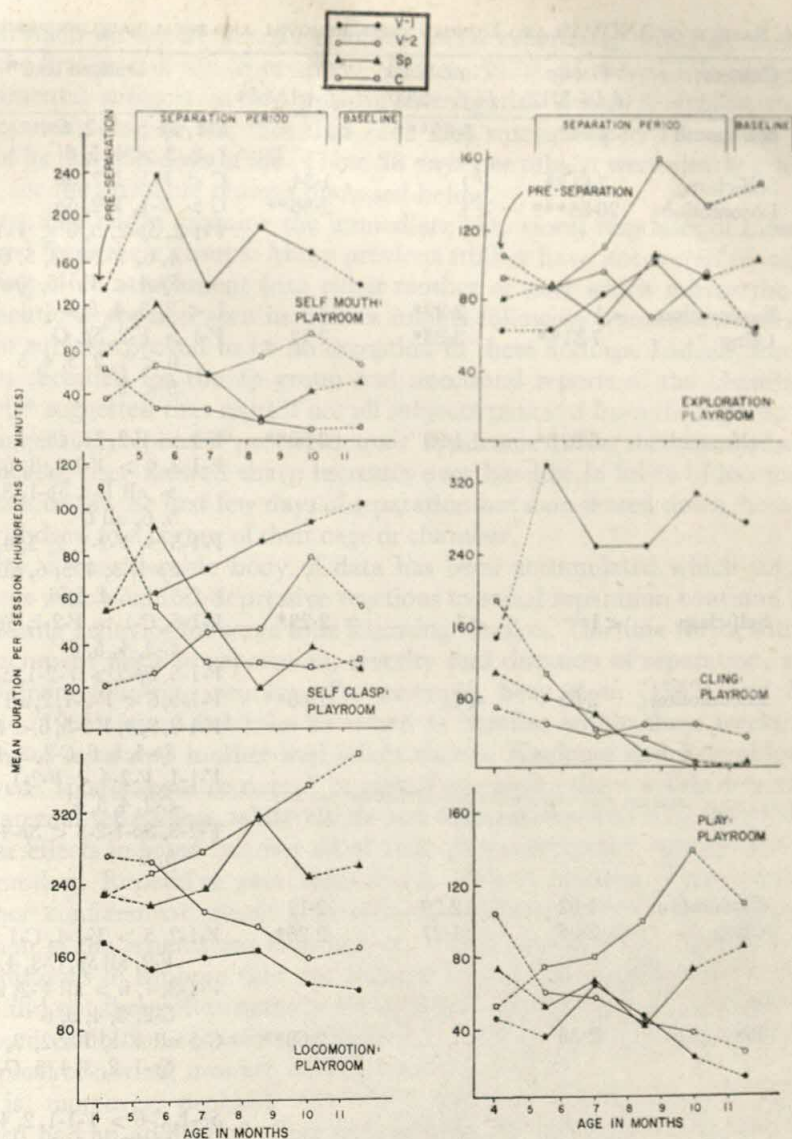


FIG. 7 Playroom levels of behavior following removals.

DISCUSSION

The results of the present investigation strongly suggest that extensive social experience, e.g. surrogate and peer interaction early in life, is not sufficient by itself to ensure the normal behavioral development of rhesus monkey infants. Such experience if not interrupted usually results in socially sophisticated monkeys free of most of the anomalous behavior patterns characteristic of monkeys denied social interaction in infancy (Harlow and Harlow, 1969). Surrogate peer-reared rhesus

TABLE 4. RESULTS OF ANOVA'S AND DUNCAN TESTS, REMOVAL AND FINAL BASELINE PERIODS

	Category	Group (<i>d.f.</i> =3/12)	Time Block (<i>d.f.</i> =5/60)	<i>G</i> × <i>T</i> (<i>d.f.</i> =15/60)	Duncan tests*
Home-cage Behaviors	Self-mouth	4.04*	5.65***	<1	<i>V</i> -1, <i>S</i> <i>p</i> > <i>V</i> -2, <i>C</i> 1, 2, 3 > 4, 5, 6
	Self-clasp	7.61**	<1	1.34	<i>C</i> < <i>V</i> -1, <i>V</i> -2, <i>S</i> <i>p</i>
	Locomotion	20.85***	<1	2.96**	<i>C</i> > <i>V</i> -1, <i>V</i> -2, <i>S</i> <i>p</i> <i>V</i> -1-2, <i>S</i> <i>p</i> -2, 5, 6 < <i>V</i> -1-1, 4, 6, <i>V</i> -2-2, 3, 5, 6, <i>S</i> <i>p</i> -4 < <i>V</i> -1-5, <i>S</i> <i>p</i> -1, all <i>C</i>
	Exploration Cling	<1 7.81**	2.99* 3.83*	<1 2.12	1 < 2, 3, 4, 5, 6 <i>V</i> -1 > <i>V</i> -2, <i>S</i> <i>p</i> , <i>C</i> 6 < 1, 2, 3, 4, 5 5 < 2
Playroom Behaviors	Self-mouth	6.82**	1.99	2.50**	<i>V</i> -1 > <i>V</i> -2, <i>S</i> <i>p</i> , <i>C</i> <i>V</i> -1-2, 4 > <i>V</i> -1-1, 3, 6, <i>S</i> <i>p</i> -2 > all <i>V</i> -2, <i>S</i> <i>p</i> -1, 3, 4, 5, 6, all <i>C</i> <i>V</i> -1-5 > <i>V</i> -2-1, 2, 3, 4, 6, <i>S</i> <i>p</i> -1, 3, 4, 5, 6, all <i>C</i> <i>V</i> -2-5 > <i>C</i> -4, 5, 6
	Self-clasp	<1	<1	2.23*	<i>V</i> -1-6, <i>C</i> -1 > <i>V</i> -2-1, <i>S</i> <i>p</i> -5, 6, <i>C</i> -3, 4, 5, 6 <i>V</i> -1-5, <i>S</i> <i>p</i> -2 > <i>V</i> -2-1, <i>S</i> <i>p</i> -4, <i>C</i> -3 <i>V</i> -1-5, 6 < <i>V</i> -2-1, 2, all <i>S</i> <i>p</i> , all <i>C</i> <i>V</i> -1-2, 3, 4, <i>V</i> -2-5, 6 < <i>V</i> -2-1, 2, <i>S</i> <i>p</i> -4, 5, 6, <i>C</i> -2, 3, 4, 5, 6 <i>V</i> -1-1, <i>V</i> -2-4 < <i>V</i> -2-1, 2, <i>S</i> <i>p</i> -4, <i>C</i> -2, 4, 5, 6 <i>V</i> -2-3, <i>S</i> <i>p</i> -1-2-3 < <i>S</i> <i>p</i> -4, <i>C</i> -4, 5, 6
	Locomotion	2.65	<1	2.86**	—
	Exploration Cling	1.02 2.06	2.29 1.27	2.12 2.26*	<i>V</i> -1-2, 5 > <i>V</i> -1-1, <i>C</i> -1 > all <i>V</i> -2, all <i>S</i> <i>p</i> , <i>C</i> -3, 4, 5, 6 <i>V</i> -1-3, 4, 6 > all <i>V</i> -2, all <i>S</i> <i>p</i> , <i>C</i> -2, 3, 4, 5, 6
	Play	2.55	<1	2.68**	<i>C</i> -5 all <i>V</i> -1, <i>V</i> -2-2, 3, 4, 5, 6, <i>S</i> <i>p</i> -1, 2, 3, 4, 5, <i>C</i> -1, 2, 3 <i>S</i> <i>p</i> -1, <i>C</i> -6 > <i>V</i> -1-1, 2, 4, 5, 6, <i>V</i> -2-3, 4, 5, 6 <i>S</i> <i>p</i> -6, <i>C</i> -4 > <i>V</i> -1-2, 5, 6, <i>V</i> -2-6, <i>S</i> <i>p</i> -4 <i>S</i> <i>p</i> -5, <i>C</i> -2, 3 > <i>V</i> -1-5, 6, <i>V</i> -2-6 <i>V</i> -1-3, <i>V</i> -2-2 > <i>V</i> -1-6

Note. Tabled numbers are *F*-scores. Abbreviation for Duncan tests: V-1, V-2, *Sp*, *C* are subject groups, 1 = 3.5-4, 2 = 5-5.5, 3 = 6.5-7, 4 = 8-8.5, 5 = 9.5-10, 6 = 10-10.5 months of age. * *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001.

monkeys, like their mother-peer-reared laboratory or feral counterparts, typically reduce their clinging, clasping, and sucking behaviors, increase their general activity,

and develop an acceleratingly complex social repertoire, primarily through play, over the first year of life (Suomi and Harlow, 1971). However, it is evident that the experimental subjects in the present investigation failed to exhibit such typical development, despite the fact that each was surrogate-peer-reared for all but 28 days of its first 350 days of life. Those 28 days per subject were clearly crucial in this study, for the probable reasons discussed below.

First, one might examine the immediate behavioral responses of those monkeys removed from their groups. Many previous studies have uncovered reactions to the breaking of an attachment with either mother or peer which mirror the syndrome of anaclitic depression seen in human infants following traumatic separation. The present subjects proved to be no exception to these findings. Indeed, formal observations recorded for the *Sp* group and anecdotal reports of the chamber housed subjects* suggested that most if not all subjects removed from their group exhibited an exaggerated, biphasic "protest-despair" syndrome during their term of separation. Specifically, they showed sharp increases over baseline in levels of locomotion and vocalization for the first few days of separation but soon slowed down, became quiet, and withdrew to a corner of their cage or chamber.

Now, a considerable body of data has been accumulated which suggests that monkeys which exhibit depressive reactions to social separation continue to exhibit debilitating behavior for some time following reunion. The time varies with strength of attachment prior to separation, severity and duration of separation, and social environment following reunion. For example, Seay *et al.* (1962) and Seay and Harlow (1965) found behavior to return to baseline within three weeks following reunion of separated mother and infant rhesus, Kaufman and Rosenblum (1967) observed "spontaneous recovery" in pigtail macaque infants within 4 weeks following maternal separation, while Hinde and Spencer-Booth (1970) detected residual adverse effects in some but not all of their rhesus subjects 6 months after reunion with mother. Repetitive peer separations, with or without concomitant vertical chamber confinement, result in severe maturational arrest fully 6 months after initiation of the separations (Suomi *et al.*, 1970; Suomi, 1973). Hence, it is hardly presumptuous to suppose that the subjects removed from group in the present research did not themselves actively accelerate group development upon return, since their own exhibition of passive, self-directed, and immature clinging behaviors was not typical of normal monkey developmental patterns.

It is, moreover, probable that the more passive behaviors of subjects once removed had an additional effect on retarding the development of subjects not yet removed. Social development of infant monkeys hinges on reciprocation; certainly one of the best documented findings of the primate literature is that social competence is largely determined by degree of social stimulation early in life (e.g. Harlow and Harlow, 1969). Based upon their postremoval behaviors, it would appear that the subject once removed would not be as "stimulating" to their not-yet-removed peers and in that way would limit the development of those peers. Put another way, it is probably more difficult for a young monkey to develop a com-

* Formal analysis of *Sp* members' behavior during separation is presented in Suomi (1971). For a detailed explanation why formal observations were not performed on subjects during chamber confinement, see Suomi (1973).

plex play repertoire with a passive, clinging partner than with an active, reciprocating partner. It is thus reasonable to assume that the deterioration of group social development was passively as well as actively accelerated by subjects returning from separation.

Yet removal from group ought not be viewed as an all-or-nothing manipulation in terms of its consequences. The data clearly indicated that major differences in subject behavior following reunion existed not only between but also within groups. Some of the between group differences can be parsimoniously attributed to the difference in removal procedure. It was found, for example, that chambered monkeys self-clasped more and locomoted and played less than the monkeys who were separated but not chambered. These obtained differences between chamber confinement and simple separation were consistent with those found by Suomi (1973) among monkeys following repetitive peer separation.

On the other hand, obtained differences between groups *V-1* and *V-2* are not as easily explained. Both groups were theoretically exposed to identical rearing and experimental environments, yet group *V-1* exhibited significantly higher levels of clinging and self-clasping than group *V-2*, and tended to have somewhat lower scores for the categories of locomotion and play. In other words, members of *V-1* seemed to be considerably more adversely affected by group removals than members of *V-2*. How could such results occur if both groups failed to differ during baseline and were treated alike subsequently? Subjects were not related genetically within groups, so that genetic differences should have been distributed equally among each group of subjects.

A possible explanation may lie in the fact that *order* of removal from group was randomly determined within each experimental group of subjects. Thus, for group *V-1* order of removal was female, female, male, male; for group *V-2* it was male, female, male, female; for the *Sp* group it was female, male, female, male. It is well-documented that male and female infants become behaviorally dimorphous within the first 4 months of life, so it is plausible that different order of removing animals by sex contributed to the group behavioral differences which emerged. Another possibility is dominance. Based on the opinions of the trained observers, the most dominant animal in group *V-1* was the third of its group to be removed, while the most dominant animal in group *V-2* was the first to be removed. Kaufman and Rosenblum (1967) suggest that dominant monkeys are less adversely affected by separation than submissive monkeys. If this were true in the present study, it might be argued that initial effects of removal were less severe in *V-2* than in *V-1* because the first subject removed was less adversely affected by its separation. Obviously, this is nothing more than *post hoc* speculation and should be judged in that light. But it does illustrate a somewhat larger point. When studying complex organisms such as monkeys it is unwise to assume that all members of a group behave alike, for most likely they will not. As study of social groups becomes more sophisticated it should soon become obvious that one cannot fully understand group behavior unless one also has an understanding of the scope and nature of individual differences.

SUMMARY

Rhesus monkey infants were reared with surrogates in groups of four for the

first 4 months of life, then were individually removed from their group for 28 days during the succeeding 6-month period. Members of two groups were placed in vertical chambers during their period of group separation, while members of a third group were housed in single cages during their time of separation. A control group of four monkeys remained intact throughout the study. Results indicated that following removal from group, subjects showed lower levels of locomotion and play and higher levels of clinging and self-clasping than nonseparated controls. Differences from controls were exaggerated in the monkeys confined in vertical chambers during separation. All separation groups were socially inferior to the control group by the end of the study. Implications of these findings are discussed.

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ANNOTATIONS

CONDITIONING METHODS OF TREATING CHILDHOOD ASTHMA

DIANE LUKEMAN*

THE ROLE of learning through conditioning has long been considered important in the development of the symptoms of asthma. The experimental induction of asthma-like responses by conditioning, in both animals and humans, has been reviewed by Moore (1965) and Ballard (1973). Turnbull (1962) proposed a theoretical framework for the development of asthma based upon higher order conditioning and stimulus generalisation from the early mother-child relationship. Purcell (1965) indicated the difficulties in drawing conclusions from attempts to establish asthma as a conditioned response under laboratory conditions and emphasizes the methodological weaknesses in the experimental designs.

Recent work with asthmatic children (König and Godfrey, 1973) has confirmed that the appearance of asthma is due to one or more triggering stimuli acting on a genetically inherited bronchial lability. These stimuli are usually considered to fall into one of the three groups, infective, allergic or psychological, but it may well be that different stimuli provoke the asthma at different times, or that certain combinations of stimuli act together. The appearance of symptoms, such as wheezing and difficulty in breathing, can be extremely anxiety-producing and is described so by both parents and children. It would seem logical, therefore, to suppose that repeated attacks could lead to anxiety and fear becoming associated with the provoking stimuli themselves, as well as with related objects and situations. It must also be remembered that many asthmatic children have a familial history of asthma, bronchitis and/or allergies, so that there are likely to be established patterns of behaviour and attitudes towards the appearance of the symptoms. The anxieties of the parents, interacting with those of the child must play a significant part in the handling of subsequent attacks.

While emotional precipitants are important as provoking stimuli in attacks of asthma, it is apparent that the degree of handicap caused to the child and his family by these attacks can lead to psychological disturbances, so that it becomes difficult to separate cause from effect. Graham *et al.* (1967), in the Isle of Wight study, found that the frequency of behaviour disturbance in asthmatic children was no greater in those with a heavy allergic and genetic loading than in those without such factors. Data from this study also showed that, while psychiatric disturbance appeared more frequently in the asthmatic group when compared to the general population, it was no greater than in a group of children suffering from other physical disorders.

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It is not, therefore, surprising that with such a potential for complex interactions between precipitants and social and environmental factors, findings from laboratory-based experiments on conditioned asthma are inconclusive.

In spite of the ambiguity of the experimental evidence, conditioning methods are being employed in the treatment of childhood asthma. Moore (1965) carried out a controlled study of treatment by behaviour therapy with 12 asthmatics, including 6 children aged between 5 and 13. Three types of treatment were used—relaxation, relaxation with suggestion, and relaxation with reciprocal inhibition utilizing three 10-item hierarchies with each subject. These hierarchies were based upon (i) the asthmatic attack itself, (ii) relevant allergic or infective stimuli, and (iii) a situation productive of “a key psychological stress in the psychodynamic formulation”. Hierarchies (ii) and (iii) were constructed individually for each subject. All three treatments produced subjective improvement, but only relaxation with reciprocal inhibition brought about changes in the objective, physiological measures. Results for the children were not analysed separately as Moore stated that she found no significant differences in response to treatment between children and adults.

Ballard (1973), utilising more refined measures for assessing bronchial lability, treated 10 asthmatic children aged 8–14, 5 of whom received relaxation training only and 5 relaxation with desensitisation. Two 10-item hierarchies were used for each subject in the second group—one based upon the asthmatic attack itself and one (individually constructed for each subject) based upon the precipitating factors (allergic, infective and psychological). Regular medication was continued with instructions for reducing the dosage if symptoms improved. Improvement, on both subjective and objective measures, was reported in children from both treatment groups. One interesting observation was that 4 of the 5 children who showed improvement on all measures were placebo responders prior to psychological treatment, i.e. they showed inhibition of bronchoconstriction on a standard exercise test following administration of placebo, a response usually induced by premedication with bronchodilator drugs or disodium cromoglycate (Godfrey and Silverman, 1973). Ballard observed that, following psychological treatment, the placebo response was no longer obtained, suggesting that relaxation, with or without desensitisation, can provide these children with an alternative “prop” to their medication. These findings merit further investigation into possible associations between placebo response and suitability for conditioning treatment.

The relative importance of relaxation in desensitisation procedures has never been clearly established. While Moore (1965) found relaxation without desensitisation ineffective in bringing about symptomatic improvement, children in both Ballard's treatment groups showed improvement on all measures. There is, however, evidence from studies carried out at the Children's Asthma Research Institute in Denver that relaxation training can improve asthmatic symptoms. Alexander (1972) and Alexander *et al.* (1972) have shown that teaching systematic relaxation can increase peak flow measures. Davis *et al.* (1973) showed that training in relaxation, using a bio-feedback technique was more effective than training in systematic relaxation. Relaxation training, however, was most effective with non-severe asthmatics (i.e. those not receiving steroids), a group that Creer (1973) refers to as being amenable to “psychological and social intervention”.

Khan *et al.* (1973) used counter-conditioning by bio-feedback to treat groups of children aged 8–15. Bronchoconstriction was provoked by physical and psychological methods and bio-feedback reinforcement was then used to train the children in bronchodilatation. A significantly greater improvement was reported in the experimental group compared to a control group and this was maintained at follow-up, 8–10 months later.

All these treatment models utilise conditioning methods to counter the effects of the precipitants. Improvement in asthma has also been achieved by employing conditioning methods to treat the psychological disturbance that is often a consequence of the asthma. Creer (1970) analysed the behaviour of two children with a high frequency of attacks, necessitating repeated admissions, who seemed to be “bringing on” attacks and exaggerating their symptoms. Observation showed that they were the “darlings” of the nursing staff and received much attention whilst in hospital. A programme was instituted, involving their “isolation” during hospitalisation with only their school books, and this significantly reduced the frequency of their attacks. Reversal of this procedure resulted in a return to the previous level of attacks.

A recent case at Hammersmith Hospital (Lukeman, 1974) demonstrated the value of using the parents to modify behaviour and thus reduce the frequency of asthmatic attacks. A 4-yr-old girl, with a history of asthma, suddenly began to wheeze whilst attending playgroup. Discussion with the mother revealed that the child had become anxious about her visits to the asthma clinic. In addition, she had missed a week at playgroup due to illness and had found changes on her return. The response of the staff to her wheezing was to isolate her and call the mother to take her home, where the wheezing soon stopped. The mother was advised of ways of altering the consequences of these attacks, e.g. not removing her from playgroup and encouraging the staff to draw her into activities. Within 2–3 weeks, there was a reduction in the number of attacks and a return to normal uninterrupted attendance at the playgroup.

A review of the literature shows that studies of treatment of childhood asthma by conditioning are few, numbers of patients are small and follow-up inadequate. It is clear, however, that conditioning methods have had some success in the treatment of asthma both by intervention at the precipitant stage and by treatment of the disturbance produced by the presence of the asthma. Further systematic investigation is required, particularly of the variables involved in the selection of cases and in the choice of treatment method, so that the efficacy of conditioning methods in the treatment of asthma can be more fully evaluated.

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HALOPERIDOL

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HALOPERIDOL is a halogenated butyrophenone derivative with a potent action on the central nervous system. It was first produced in 1958 and was originally used for psychotic illnesses in adults, particularly for mania and some forms of schizophrenia. More recently it has been recommended for use in various forms of childhood behaviour disorder, in particular for hyperactive children; also for tics, including the Gilles de la Tourette Syndrome; and for stuttering.

BEHAVIOUR DISORDERS

Rogers (1965) suggested that haloperidol might be of value in disturbed children and the results of two subsequent controlled trials (Cunningham *et al.*, 1968; Barker and Fraser, 1968) supported this impression. *Motor hyperactivity* appears to be one of the principal "target symptoms" for which haloperidol is likely to be effective. Various controlled trials support this. Thus Wong and Cock (1971) in a controlled double blind study on 30 children found that "restlessness" was reduced by the drug to a highly significant extent. Significant responses were also found in "aggressiveness", "inhibition" and "concentration". In this trial, however, the overall assessment of the children did not show a significant difference between the results of haloperidol and those of placebo. Thus while certain symptoms had improved this was not so for the children's condition generally.

Wong and Cock's results probably sum up the present place of haloperidol in the treatment of childhood behaviour problems generally. The drug can be of value as a symptomatic treatment, but should only be used as part of a wider treatment plan, and following a full assessment of all aspects of a case. Nevertheless it can be highly effective in some hyperactive children; and it can be used with pre-school children, if necessary with those as young as 2 yr. Treatment may need to be long-term, even several years. It seems that, particularly where biological factors play a large part in a child's hyperkinesis, haloperidol can sometimes radically affect a child's situation in his family or school, through the changes in the attitudes of others which occur when he becomes less active.

There is evidence also that haloperidol is of value in behaviour disturbances in mentally retarded children. Le Vann (1971), in a double blind trial comparing haloperidol with chlorpromazine found that "impulsiveness", "hostility" and "aggressiveness" were reduced significantly more often by haloperidol than by chlorpromazine. The "global results" with haloperidol were also better.

Haloperidol does not seem to have any effect on the course of psychotic disorders in children, though it can be useful in controlling such symptoms as restlessness and

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hyperactivity when they occur in psychotic children. Presumably however the drug would be indicated for mania, on the rare occasions when this occurs in children.

TICS

There is much evidence that haloperidol can reduce the frequency and severity of children's tics. Connell and his colleagues (1969) found haloperidol to be of value in adolescent ticquers. In this double blind controlled trial the drug brought about a highly significant reduction in the frequency of the tics. It seemed to be especially effective in preventing increase of the tics under stress. This is perhaps the only treatment for tics in children, the value of which has been convincingly demonstrated. A number of papers have examined especially the use of haloperidol in the Gilles de la Tourette syndrome. Challas *et al.* (1967) reported eleven cases of this syndrome of severe tics, with echolalia and copralalia. They observed that "Tourette's disease has been resistant to nearly all methods of treatment", but consider haloperidol to be an exception to this statement. While they did not carry out a controlled trial, they used the drug in six of the cases reported, with strikingly successful results. The doses used to control the tics were in some cases quite high: 6 mg/day in a 15-yr-old boy, 5.2 mg/day in a 12-yr-old girl.

Among numerous other reports of the successful use of haloperidol in Gilles de la Tourette's syndrome are those of Boris (1968), Barr *et al.* (1972) and Sand (1972).

STUTTERING

There is evidence that haloperidol is of benefit in some cases of stuttering in adults (Wells and Malcolm, 1971). Little work has been done in children but it does seem that good results can be obtained in certain child stutterers, particularly some of those who are most handicapped (Andrews, personal communication). This is an area in which more research, including controlled trials, is needed.

DOSAGE

The commonly recommended dosage of haloperidol in children is 0.05–0.1 mg/kg body weight in 24 hr. The drug is usually given in two divided doses. The build-up of blood level and effect takes several days and there is probably no advantage in administering haloperidol more often than twice daily. Doses a good deal higher than the above maximum have been given and are sometimes justified.

Tablets of 1.5 mg and capsules of 0.5 mg are available. For children a useful preparation is "Serenace Liquid", which is available in dropper bottles of 15 ml each drop containing 0.1 mg of haloperidol. Accurate dosage and gentle gradation of the dose is thus possible.

It is advisable to start with no more than 0.05 mg/kg/24 hr and to increase this gradually over a few weeks until a satisfactory therapeutic effect or the maximum recommended dose is reached. A few children appear hypersensitive to the drug and require even smaller doses than the minimum mentioned.

With doses over about 0.07 mg/kg/24 hr, especially in older children, the simultaneous administration of an anti-Parkinsonian drug such as benzhexol 1–2 mg b.d. (according to age), or procyclidine, 2.5–5 mg b.d. is advisable.

The *duration of treatment* necessary varies greatly, and can only be determined by discontinuing treatment for short periods every 4-6 months. It is advisable to do this, and also to try smaller doses from time to time. Since treatment, especially in hyperactive children, may need to continue for as long as several years, the smallest possible dose should be used, compatible with control of symptoms.

SIDE EFFECTS

Drowsiness is common in the early stages of treatment with haloperidol. It usually wears off after a few days. If it is troublesome it can be countered by a temporary reduction of the dose.

Dystonic reactions can occur, particularly with the higher doses. For any particular weight-related dose these reactions seem to be commoner in older children, and especially adolescents, than younger children. The muscular spasms, which may affect any group of muscles, can be both alarming and painful. They can almost always be avoided by careful calculation of the appropriate dose, gradual increase from a low dose to the dose required and the simultaneous administration of an anti-Parkinsonian drug when higher doses are used. If they do occur they respond dramatically and satisfyingly to the intravenous injection of procyclidine. Dystonic reactions have also been reported on withdrawal of haloperidol (Polizos *et al.*, 1973), though the doses which have been used by these authors ranged up to 15 mg/day in children whose mean age was 10.3 yr.

There do not appear to have been any reports of adverse reactions from the long-term use of haloperidol in children, apart from the withdrawal effects mentioned by Polizos *et al.*, but it is clearly desirable that maintenance doses should be as low as possible, normally not more than the usually recognised maximum dose of 0.1 mg/kg/day.

TOXIC EFFECTS

Excessive dosage of haloperidol causes signs of Parkinsonism, especially muscular rigidity, slow movements, tremor and increased salivation. Drowsiness, apathy and ataxia may also occur.

CONCLUSIONS

Haloperidol appears to have an established and useful role in child psychiatry. It should seldom, if ever, be the only treatment given, though in some children with tics it may be the main one. On the whole it is a safe drug which, properly used, can be given to most children without adverse effects.

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BOOK REVIEWS

Child Psychiatry in the Soviet Union. NANCY ROLLINS. Oxford University Press, London, 1973. pp. 293. £6.50.

CURRENT dissatisfaction with the deployment of child psychiatric expertise, a feeling which is so prevalent in the West, should make this book of particular interest to British and American child psychiatrists. Russian child psychiatry differs theoretically, organizationally and practically from our own, and Dr. Rollins (an American child psychiatrist who speaks Russian), having spent several months in the Soviet Union, is obviously well-equipped to relate Soviet practice to Western ways of working.

As with other aspects of post-revolutionary life in the Soviet Union it is possible to detect a certain continuity in outlook from pre-revolutionary days. A preoccupation with diagnosis and classification remains as a carry-over from nineteenth century German adult psychiatry. The monistic view with which this was associated led to an assumption of the presence of underlying neurophysiological processes when behaviour was abnormal, and the integration of Pavlov's concepts into Russian psychiatry was therefore a natural development.

The classificatory items which the eminent Soviet child psychiatrist, G. E. Sukhareva has devised, divides disorders up into three main groups. Major psychiatry includes both frank neurological disorder and psychoses with the assumption that the latter have an underlying organic basis. Minor psychiatry or "borderline states" include reactive conditions and pathological personality development sub-divided both according to their manifestations and according to type of psychogenic aetiology. The third main division subsumes different varieties of mental retardation.

It will be clear that the theoretical framework of Soviet child psychiatry carries expectations of underlying neurophysiological and neuropsychological processes which are often absent in the West where psychodynamic inferences are more frequently drawn. According to Dr. Rollins psychoanalysis was tolerated, if not encouraged, in the Soviet Union until the late 1920's when its deterministic flavour brought it discredit in a situation where it was expected that all psychological problems could be overcome with appropriate social measures. Subsequently there has been a slight tendency to re-establish the possibility that unconscious mental mechanisms may play a part in the development of psychiatric disorder but "rational" psychotherapy is the most common form of psychological treatment. This emphasis on intellectual explanation and guidance is a further point of difference from Western practice.

Where perhaps most interest in the Soviet system lies for a Western observer is in the organization of services for disturbed children. The unification of their psychiatric services has made a strong emphasis on prevention possible from the start. Demands for treatment are not allowed to swamp preventative efforts. Each children's polyclinic where primary health care is provided by a team of nurses and paediatricians is served also by its quota of psychoneurologists who, for example carry out regular screening examinations at 3 yr for the entire child population for which they are responsible. This team of doctors also provides the school medical service with emphasis on consultation with teachers. A serious attempt is made to identify and treat all disturbed children and in the large cities waiting lists for assessment and treatment are virtually non-existent. The child psychiatrists (1 per 15,000 children) also provide a service in which about one-third to one-half of their time is spent in consultation with other professional groups. Of necessity, because of the aim to cover all children needing psychiatric help, consultations are relatively brief. A psychiatrist is expected to conduct two and a half follow-up appointments per hour, though initial diagnosis may take somewhat longer than this.

More questionable is the emphasis in the Soviet Union on a medical model together with rapid resource to hospitalization albeit of short duration. There are many times more psychiatric beds for children in Moscow than there are in London. Although this could reflect a higher rate of psychiatric disorder in the U.S.S.R., it is more likely that alternative arrangements for investigation and treatment are more readily available in the West. The fact that the profession of social work does not

exist in the Soviet Union does not mean that social investigation does not occur. Such work is shared in the child psychiatric field by doctors and nurses both of whom do domiciliary visiting. It is likely that such a system means that situations which might better be thought of as "life problems" for a family are seen as disease problems within a particular child and this too may mean a larger need for hospital beds. The same explanation probably holds for the fact that physical methods of treatment are probably more widely used in the U.S.S.R.

On a recent visit to the U.S.S.R., I found Dr. Rollins' book an invaluable guide. The only quibble I would make is that it seemed to me that there was rather more variation between centres than she describes. It seemed, for example, that there were significant differences in organization and approach between Moscow and Leningrad child psychiatry. In Leningrad psychologists are now carrying out psychometric testing and have developed a number of interesting tests of their own. In Leningrad too there is a more definite professional boundary between paediatric neurology and child psychiatry. There are also diagnostic differences, for example, in the criteria used for diagnosing schizophrenia in the two centres. Variation within the U.S.S.R. is probably less noticeable than it is between different centres in the West where experimentation may be more easily acceptable.

There can be no doubt that further interchange of professional information in child psychiatry would be of benefit to specialists working in both the Soviet Union and the West. In particular, comparison of epidemiological data with special projects attempting to relate different prevalence rates to different child-rearing practices and different types of social organization would be fruitful. Certain drugs and other physical treatments used in the U.S.S.R. would merit at least evaluation in the West, and I would suggest that our own professional balance of payments could be kept in reasonable shape by an export both of ideas relating to research methodology and to family process models of psychopathology.

PHILIP GRAHAM

The Language Disordered Child: A New Look at Theory and Treatment. G. M. FRASER and J. BLOCKLEY. Edited by P. A. BERSE. Windsor, 1973, NFER pp. 56. £2.15 (soft cover only).

THE IMPOSING press release which accompanied the review copy of this pamphlet began with the clarion call, "A new approach to children with language disorders has been developed and successfully applied by two London language specialists." These claims were repeated almost verbatim in both the popular and educational press. Obviously, they warrant careful study.

The authors, respectively an educational psychologist and a speech therapist, work at the ILEA's Braidwood Audiology Unit. The three papers which comprise this volume are the results of their dissatisfaction with existing speech therapy practices for the deaf and language-impaired child, and their consequent attempt to formulate a different therapeutic approach.

Whether the original writing or subsequent editing is at fault, the resulting text is difficult to read—convoluted in style and jumping from one idea to another without intermediate linking statements. Even so, it appears that the authors link traditional speech therapy approaches to what they term a "behaviouristic" interpretation of language. They argue from a somewhat muddled review of isolated philosophical writing on the nature of language, that a rationalist view holds more promise in understanding the true nature of language. The problem is how to bridge the gap from this idea to a practical, therapeutic application.

From a perusal of the test records of children assessed at the clinic, it was concluded that language-impaired children have difficulties in perception, particularly of time and space. These cognitive difficulties are viewed as somehow primary to the language disorder. Therapy is therefore aimed at training the child in the perception of spatial and temporal relationships.

This exposes an interesting logical inconsistency. One defect is concentrated on instead of another, and mechanistic (dare one say behaviouristic) methods are employed to accelerate the child's development in that area, even though such methods were strongly criticised when applied to the first area of development. An added disadvantage of the second approach is that it is based on the assumption that development in one area will facilitate development in another. Previous research on the efficacy of perceptual training in poor readers has shown such an assumption to be largely untenable. However, in the area of spoken language, it would be foolish to deny that there are many pre-language skills that are necessary for later language development. What is needed is evidence that by concentrating on such areas, later language development is accelerated.

Such evidence is not presented in this book, despite what the authors and press-release writers may believe. The case description describes a child who had a year of intensive speech therapy which improved his spoken language considerably but still left him with a language handicap. Whilst speech therapy and full-time infant schooling continued, perceptual training was given for three months. After this, the boy had improved so much that he was transferred from the school for delicate children to an ordinary school. The authors imply that the perceptual training rather than the earlier speech therapy or his continuing education are responsible for the success.

The other, shorter case histories are equally unconvincing, both intuitively and scientifically. Even though there is little evidence for the therapeutic efficacy of traditional speech therapy, one must fervently hope that direct intervention for language disorders will not be abandoned in favour of perceptual training on the basis of this idiosyncratic approach.

WILLIAM YULE

The Mentally Retarded Child and his Family. HAROLD D. LOVE. Charles C. Thomas, Springfield, Illinois, 1973, pp. ix + 263. \$7.95 cloth, \$5.95 paper.

AFTER recovering from the initial shock of realization that their child is mentally retarded, parents commonly seek further knowledge about the nature of mental handicap and about what can be done for affected children. At the same time, they are looking for a glimpse into the future. They want to know just how the child will differ from other children as he grows up, how much his development may be influenced by education or training and, most of all, how the lives of the rest of the family will be changed by the retarded child in their midst. In their search for the answers to their questions, parents are likely to find that the only books dealing with mental retardation available in bookshops of public libraries are clinical text books better suited for medical students or personal, and often sentimental, accounts of parents' own experiences. There is a need for informative books aimed at the parents of mentally retarded children. This book is introduced as having been written with just that purpose in mind.

The appearance of the book is promising. Most of the important topics are included in the list of contents which covers parental reactions; causes, prevention and treatment of mental retardation; community or state responsibility for the mentally retarded; the educational and recreational needs of the retarded and finally a chapter on the entire family.

This is an American book and services provided by the community there will differ from those found here. However, this section is not a clear account of what is available for retarded children but rather a wishful viewpoint of what the community's responsibilities should be; this is more helpful to the planner of future services than to the parent of a child with immediate needs.

The causes of mental handicap are more clearly described and the adverse effects of social and cultural deprivation are included. The parent of a new born mongol, however, may well find the clinical description of mongolism chilling and the reference in a case history to a mongol who, "had he lived, would probably have been sent to an institution" far from encouraging.

The classification by broad I.Q. bands into "educable", "trainable" and "custodial" is used throughout later sections on education and the impression given is that there are clean cut differences between the groups and that assignment to a category can be made confidently from an early age. The author, however, makes known his opinion that labels and categories would have no place in an ideal world where individual differences could be catered for, but perhaps not everyone is pessimistic enough to agree that this ideal will never be reached.

In the first two chapters dealing with parents and in the last one on the entire family, there is much that shows a sensitive understanding of the emotional and practical problems which assail the families of the retarded child, with evidence from a number of studies. The risk of imposing too great a domestic burden on elder sisters is pointed out. Also discussed are the effects of a retarded child upon the sibling's own self esteem and upon relationships between the siblings and their friends. Unfortunately, the advice to parents is inclined to be in terms of what parents should or even must do, although some of the advice is debatable. Having got so far, parents will be relieved to learn towards the end of the book that many families with a retarded child thrive despite the difficulties.

This book goes some way to filling the gap. It has drawbacks and we are left still looking for a clear and concise book to recommend with confidence to parents who want to know what mental retardation will mean to them and how they can get the help they require.

ANN GATH

A First Language—The Early Stages. ROGER BROWN. George Allen & Unwin Ltd., London, 1974, pp. x + 437. £5.95.

THIS book is the first part of a two-volume work on the acquisition of language in pre-school children. It is a valuable contribution to the literature on this topic and makes interesting, if demanding reading, for the researcher and educationalist. The author established five stages of language acquisition based on the mean length of the child's utterances and presents in this volume, a systematic and detailed account of the two initial stages.

On the basis of his own research and that of others on non Indo-European languages, the author demonstrates that during stage I a child communicates a limited set of meanings and does not simply concatenate words. Hence, any characterization of his utterances in terms of a pivot-grammar fatally underestimates his knowledge. Children refer to objects and events in their world (e.g. they name objects and note their appearances and disappearances) and express some of the semantic relations that obtain amongst them (e.g. they state the agent of an action, or the possessor of an object). As he moves through the various stages, the child progresses from a state in which all the major sentence constituents are expressed optionally to one in which they are expressed obligatorily. He becomes a widely adapted language user. For stage II the author analyses the way a child learns to modulate the basic meanings grasped in the previous stage by constructing sentences in which, for example, the verb is marked for tense and nouns are marked for number.

Various plausible linguistic accounts of the data in the stages are evaluated and a number of important conclusions about language acquisition are reached. The most important one is that when constructions are characterized abstractly the order in which they are acquired is invariant both across children and possibly languages, and depends upon their relative semantic and grammatical complexity. While the order of acquisition may be invariant the rate at which children acquire them is not. There appear to be no good explanations of this fact. Brown speculates that it may be related to differences in general intelligence, but a more important factor may be the extent to which children seek to grasp the world linguistically or to operate upon it directly. This issue must await investigations into the precise content and vocabulary of the child's expressions that were justifiably ignored in the present work.

D. GREEN

Adolescents Grow in Groups—Experiences in Adolescent Group Psychotherapy. Edited by IRVING H. BERKOVITZ. Butterworths, London, 1972, pp. xiii + 250. £3.80.

WITHIN this volume are 20 papers, describing experiences in adolescent group psychotherapy in the U.S., written by representatives of the three disciplines; psychiatrists, psychologists and social workers. In the introductory section, the Editor outlines the indications for and limitations of group therapy. In addition there is a discussion of the issues involved in patient and therapist selection, a description of the topics arising at the start of a group and some thoughts on the degree of therapist involvement.

The main part of the book is divided into two sections. The first deals with clinic and community-based groups of a wide variety. The papers include "a psychoanalytical approach to group therapy with older teenagers in private practice", "family group therapy", and "a drop-in group for teenagers in a poverty area." The second section contains six papers on residential groups in various settings such as adolescent wards, a residential children's home and a probation department. In addition one paper discusses the problems of counter-transference experienced in a ward-group. Each section also contains a prelude, critique and overview.

The miscellany of views expressed, and the diverse group experiences described, make for stimulating and engrossing reading. Inevitably allowance has to be made for the American influence—the problems associated with payment of fees will be unfamiliar to most adolescent-group therapists in this country; some of the chapter titles might be considered uninviting, but readers who feel disinclined to pursue "Two grey cats learn how it is" will miss the best paper in the book. There is a marginal bias towards private-practice settings, which makes the three papers on groups for teenagers from deprived areas all the more refreshing. These latter three papers, all written by social workers, are of great value, particularly to those of us working in densely populated areas. There is a pleasing absence of jargon throughout the book, and an intriguing mixture of self-satisfaction and self-criticism amongst the contributors. This is a reasonably priced, easy to read, informative and absorbing book, which is highly recommended to anyone working with adolescents.

BRYAN LASK

THE CONCEPT OF SPECIFIC READING RETARDATION

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THE TERMINOLOGY used in referring to reading difficulties is chaotic and confusing, with descriptive words such as backwardness, illiteracy, disability and impairment vying for a place with medical terms such as dyslexia or word-blindness (Pilliner and Reid, 1972). In part, this chaos stems from a vagueness of definitions and a general looseness in the use of words, but to a much greater extent it stems from fundamental disputes about the nature of reading problems. This dispute is most evident in the continuing controversy about the existence of dyslexia (Reid, 1969; Rutter, 1969). Conferences on reading are full of heated exchanges about whether the condition does or does not exist (Downing and Brown, 1967; Franklin, 1967). There are specific arguments and considerations regarding dyslexia (see below), but in many ways it can be seen as but one example of a more general debate about whether there is any meaningful differentiation within the broad group of children who are poor readers.

Two types of initial differentiation have usually been made. The first distinction is between a failure to acquire reading skills and a loss of these skills (or a failure of progression) after the initial skills have been attained (de Hirsch, 1963; Rutter, 1974). This paper is concerned only with the first of these groups. The latter group is probably much smaller and certainly much less is known about it. The second distinction is between general reading *backwardness* and specific reading *retardation* (Rutter, Tizard and Whitmore, 1970; Pilliner and Reid, 1972). *Backwardness* describes reading which is backward in relation to the average attainment for that age, regardless of intelligence. Retardation, on the other hand, is a term used to describe a specific disability in reading—specific that is to say in the sense that the reading difficulties are not explicable in terms of the child's general intelligence. In short, specific reading retardation refers to a variety of what is usually called "under-achievement", whereas reading backwardness concerns *low* achievement but not *under-achievement*. Because of the way in which reading backwardness and retardation are defined, there is one obvious difference between these two groups of children. Reading backward children are, as a group, well below average intelligence, whereas children with specific reading retardation have a mean I.Q. which is roughly similar to that of the general population (Rutter, Tizard and Whitmore, 1970). This difference merely follows from the definition and it is, therefore, of little interest in itself. The question is whether the differentiation has any meaning in terms of carrying information about *other* differences between the two types of reading disability in terms of aetiology, prognosis or treatment. Only if the differentiation can be shown to have some meaning in these terms is it justified as having

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practical value (Davis and Cashdan, 1963). It is this issue with which this paper is concerned.

THE CONCEPT OF "UNDER-ACHIEVEMENT"

The concept of "under-achievement" has often involved the assumption that children are not performing up to their innate potential (Burt, 1950, 1970). It has been argued that the I.Q. is a measure of innate intelligence and that the mental age based on the intelligence test score reflects the child's intellectual capacity, i.e. the maximum level of performance of which he is capable. It was assumed that children rarely, if ever, achieved at a level above their mental age, and that the extent to which educational attainments fell short of mental age reflects the degree to which the child is performing below his capacity. There are profound statistical and conceptual objections to these assumptions (Pidgeon and Yates, 1956; Crane, 1959; Graham, 1970; Rutter and Yule, 1973; Yule *et al.*, 1974) and the concept of under-achievement implicit in the definition of specific reading retardation, as used in this paper, carries none of these assumptions.

That genetic factors are very important in the development of intelligence is indisputable, but there is abundant evidence that the I.Q. is far from a pure measure of innate ability. Severe environmental privation (both biological and psychological) can seriously impair intellectual development as represented in the I.Q., as well as in other measures (Haywood, 1967; Birch and Gussow, 1970; Rutter, 1972). The I.Q. reflects a child's genetic endowment, but also it reflects the quality of his nutritional and experiential environment.

Furthermore, it has been shown that many children *do* achieve at a level well above their mental age (Crane, 1959; Yule *et al.*, 1974). In practice, as well as in theory, the notion that mental age sets an upper limit on attainment is quite invalid. Of course, as follows from the correlation between I.Q. and educational attainment, children of high mental age have, on average, a higher level of attainment than do children of low mental age, but that is a quite separate issue. The point, simply, is that mental age does not set a limit. *All* levels of attainment can occur at any given mental age level, although obviously all levels are not equally likely.

The intelligence test provides a sample of behavior. The behaviours selected for testing cover a wide range of intellectual skills and are chosen on the basis of their being relatively independent of schooling but still providing a good prediction of educational attainments. The intelligence test assesses the child's performance on a variety of tasks and in this sense intelligence test scores are *achievement* scores just as much as are reading or arithmetic scores (Vernon, 1970). The I.Q. does not "cause" the reading score and it would be just as valid to predict I.Q. on the basis of reading as to follow the more usual converse procedure. In short, you could examine "under-achievement" of intelligence in relation to reading or of reading in relation to arithmetic, in the same way as you study "under-achievement" of reading in relation to intelligence. In fact, of course, this is not done because in practice this is a less useful way of doing it. Intelligence scores are much the most useful predictors because they sample on a wide basis the more general conceptual or reasoning skills which a child has built up. These are mostly not acquired as a result of direct teaching but they are available for the child to apply in the acquisition of more

specialized skills in school (Vernon, 1970). It is this which makes the I.Q. such a valuable predictor of a wide range of educational attainments. Whether, intrinsically, intelligence can best be viewed as a single genetically determined general ability or a group of specific factors or a mixture of the two remains a matter of controversy. However, resolution of that issue is irrelevant for present purposes. The I.Q. test does not, and cannot, measure innate intelligence (even if that notion is valid). Nevertheless, it is a very useful measure of practical utility. Accordingly, specific reading retardation is defined in terms of reading skills below those expected on the basis of the child's chronological age and I.Q., *not* because the prediction has to be that way round or because the intelligence is innate whereas reading is not, but simply because it is more useful in practice to do it that way. "How useful?" is one of the questions to be considered in this paper.

THE MEASUREMENT OF "UNDER-ACHIEVEMENT"

The traditional way of measuring under-achievement has been to use some form of achievement ratio or achievement quotient which utilizes the ratio between the child's mental age and his achievement age. More sophisticated versions of this technique involve differences between standard scores, but all measures of this type assume that, on average, the achievement age and mental age should be exactly comparable. In other words, 10-yr-old children with a mental age of 9 yr should have an average attainment age of 9 yr and 10-yr-olds with a mental age of 13 yr should have an average attainment age of 13 yr. *But, neither in theory nor in practice, does this happen.* In fact, the mean reading age of 10-yr-olds with an average mental age of 13 yr will *not* be 13 yr, it will be more like 12 yr. Only in the middle of the distribution will the two be the same. The reason for this occurrence lies in the "regression effect". Wherever the correlation between measures (such as mental age and reading age) is less than perfect, the children who are well *above* average on one measure will tend to be less superior on the other, and those who are well *below* average on the first measure will tend to be less inferior on the second (Thorndike, 1963; Rutter and Yule, 1973). This follows inevitably from the statistical properties associated with correlation coefficients less than unity. However, as educationalists have doubted the size or the reality of the effect in actual practice it was necessary to determine what happened in real life as well as in statistical text-books. When the relationship between I.Q. and reading scores was examined in five total child populations the findings were just as predicted by the statistical properties of correlation coefficients (Yule *et al.*, 1974). The highly intelligent children had an average reading attainment which was above average but still well below the I.Q. score. Conversely, the unintelligent children had reading scores *above* their I.Q. scores, but still below average for the population as a whole. As a consequence of this effect, the achievement quotient (or ratio) is a misleading statistic which overestimates the number of "under-achievers" in children of high I.Q. and under-estimates the same in children of low I.Q.

The only satisfactory means of taking into account this regression effect when assessing under- (or over-) achievement is that provided by the regression equation. The rationale for this approach has been clearly outlined by Thorndike (1963) and

its application to the definition of specific reading retardation has been demonstrated by Yule and his colleagues (Yule, 1967; Rutter, Tizard and Whitmore, 1970). Using this technique, it follows that by knowing the correlation between the predictor variables (age and I.Q.) and the criterion variable (reading score), it is possible to calculate the expected value of reading attainment for any particular level of the predictor variable. Thus, one can determine whether the child scores above, at, or below this predicted value, and more importantly the statistical probability of any deviation from the expected value can be computed (Yule *et al.*, 1974).

This technique has been used to define specific reading retardation in a series of five epidemiological total population studies of reading difficulties (Rutter, Tizard and Whitmore, 1970; Yule, 1973; Berger, Yule and Rutter, 1973). The results of these studies are used here to examine the validity and usefulness of the differentiation between specific reading retardation and general reading backwardness.

DISTRIBUTION IN THE POPULATION: IS THERE A "HUMP" ON THE CURVE?

In general, the distributions of over- and under-achievement in the general population follow a Gaussian curve with over-achievement as frequent as under-achievement, but with most children clustering about the middle of the distribution with achievement scores just about the predicted level. It follows from the existence of a normal distribution that there are bound to be a few children with extreme degrees of under-achievement (and, similarly, a few with extreme over-achievement). This being so, the children with specific reading retardation could merely represent the lower end of a continuum (Department of Education and Science, 1972), with nothing else remarkable about them. Some children must achieve below average just as some must be shorter than average, but it does not mean that there should be anything else different about them and certainly it does not imply any disease entity. On the other hand, it has been asserted that there is a "hump" in the distribution of reading skills which represents the presence of dyslexic children (Critchley, 1970). Whether this has anything to do with dyslexia is a separate issue, but it is possible to find out if there is a "hump" on the distribution at the extreme lower end. A negative finding would not rule out the possibility that the differentiation of specific reading retardation from reading backwardness had educational value but a positive finding would suggest that specific reading retardation constitutes more than just the lower end of a continuum.

The issue has been examined by Yule *et al.* (1974) utilizing the data from five studies of the total child population which employed group tests of intelligence and reading, and three epidemiological studies of the same population using individual testing of the children for the same skills. In all eight cases, the rate of severe specific retardation (defined in terms of under-achievement at least 2 standard errors below prediction)* was above the predicted level, the difference being statistically sig-

*At age 10 yr this degree of retardation means that the child's reading is at least 30 months below that predicted on the basis of his age and I.Q.

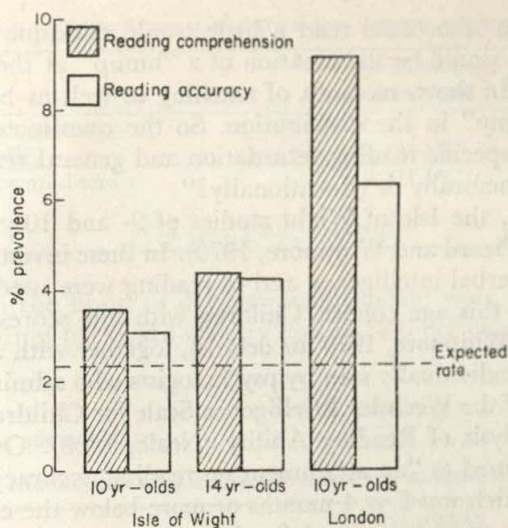


FIG. 1. Observed and expected rates of specific reading retardation.

nificant in all but two. The findings using scores from individual testing are shown in the first figure. Instead of the expected rate of 2.28 per cent, some 3.5 per cent of Isle of Wight 10-yr-olds, about 4.5 per cent of Isle of Wight 14-yr-olds and over 6 per cent of London 10-yr-olds showed specific reading retardation. Because of inevitable limitations in screening procedures the figures for observed rates of specific reading retardation must be regarded as minimum estimates. It may be concluded with confidence that there is a "hump" at the lower end of the distribution and that extreme degrees of specific reading retardation *do* occur at a rate above that expected if the distribution of over- and under-achievement was entirely normal. Overall, it is approximately normal but at the extreme lower end there are more children with specific retardation than expected on purely statistical grounds. There is no comparable excess at the top end of the distribution. The findings provide the first support for the validity of the concept of specific reading retardation.

SPECIFIC READING RETARDATION AND READING BACKWARDNESS COMPARED: CHARACTERISTICS OF THE CHILDREN

The next issue concerns the differentiation between specific reading retardation and general reading backwardness. It could be argued that although there is a syndrome of specific reading retardation, as shown by the "hump" on the distribution of over- and under-achievement, it is a meaningless distinction as specific reading retardation is no different in other respects from general backwardness in reading. Certainly it has to be accepted that the existence of a "hump" on the distribution does not necessarily imply any kind of pathological or biological entity. This distortion in the distribution would occur if, for example, children who were non-readers on leaving infants school received no further reading instruction in junior school whereas other children continued to be taught reading. What would happen in these circumstances is that the non-readers would show no improvement

whereas the children who could read a little would continue improving. After a year or so the effect would be the creation of a "hump" at the extreme lower end of the distribution. In short, methods of teaching as well as biological differences could create a "hump" in the distribution. So the question remains: "does the distinction between specific reading retardation and general reading backwardness have any meaning medically or educationally?"

For this purpose, the Isle of Wight studies of 9- and 10-yr-old children were employed (Rutter, Tizard and Whitmore, 1970). In these investigations, group tests of verbal and non-verbal intelligence and of reading were used to screen the total child population in this age cohort. Children with low scores on these tests (see Rutter, Tizard and Whitmore, 1970 for details), together with a randomly selected control group were individually seen by psychologists who administered a shortened form (Yule, 1967) of the Wechsler Intelligence Scale for Children (Wechsler, 1949) and the Neale Analysis of Reading Ability (Neale, 1958). On this basis, *reading backwardness* was defined as "an attainment on reading accuracy or comprehension on the Neale test which was 2 yr 4 months or more below the child's chronological age". *Specific reading retardation* was defined as "an attainment on either reading accuracy or reading comprehension which was 2 yr 4 months or more below the level predicted on the basis of the child's age and short WISC I.Q." Predictions were based on multiple regression equations (Yule, 1967).

Applying these definitions to children aged 9-11 yr, 155 backward readers and 86 retarded readers were identified in the total school population of some 2300 children. The two groups overlapped considerably, having no less than 76 children in common. In order to determine whether there were meaningful differences between the two varieties of reading disability, the 86 children with specific reading retardation were systematically compared with the remaining 79 children who displayed general reading backwardness alone.

As follows from the definition, the reading backward children had a mean I.Q. well below average (mean score on short WISC = 29.20; *s.d.* = 8.13). However, the specifically retarded readers were of roughly average intelligence (mean = 41.49; *s.d.* = 8.23). On Wechsler's norms the equivalent I.Q. scores are 80 and 102.5 respectively.

(a) *Sex distribution*

The first striking difference between the two groups concerned the sex ratio. Only 54.4 per cent of reading backward children were boys whereas 76.7 per cent of the children with specific reading retardation were male ($\chi^2 = 8.18$, 1 *d.f.*, $p < 0.01$). Expressed another way, in the reading retarded group the sex ratio was, 3.3 to 1 (boys to girls), whereas it was only 1.3 to 1 in the general group.

(b) *Neurological disorder*

The next major difference concerned the presence of overt neurological disorder. In the backward group, 11.4 per cent had a definite organic brain disorder (cerebral palsy and similar conditions), whereas none of the retarded group had such a condition. Dubious neurological abnormalities (disorders of co-ordination or the like which, while outside the range of normal variation, could be due to either

TABLE 1. NEUROLOGICAL DISORDER AND READING DIFFICULTIES

	General reading backwardness	Specific reading retardation
No neurological abnormality	50	70
Dubious abnormality	20 (25.3%)	16 (18.6%)
Definite organic brain disorder	9 (11.4%)	0 (—%)
Total	79	86
$\chi^2 = 12.5, 2 \text{ d.f.}, p < 0.01$		

structural defects in the brain or developmental delay) were also somewhat more common in the reading backward group (25.3 vs 18.6 per cent) but the difference was less marked.

(c) *Motor and praxic abnormalities*

TABLE 2. MOTOR AND PRAXIC ABNORMALITIES AND READING DIFFICULTIES

	General reading backwardness (<i>n</i> = 79)	Specific reading retardation (<i>n</i> = 86)
Constructional difficulties		
None	32	64
Some	32 (40.5%)	16 (18.6%)
Marked	15 (19.0%)	6 (7.0%)
χ^2 for trends = 19.794, 2 d.f., <i>p</i> < 0.01		
Clumsiness (clinical assessment)		
None	63	79
Some	11 (13.9%)	7 (8.1%)
Marked	5 (6.3%)	0 (—%)
$\chi^2 = 7.408, 2 \text{ d.f.}, p < 0.05$		
Clumsiness (Oseretsky)		
None	38	59
Slight	22 (27.9%)	16 (18.6%)
Moderate	19 (24.1%)	11 (12.8%)
χ^2 for trends = 7.24, 2 d.f., <i>p</i> < 0.01		
Motor impersistence	27 (34.2%)	13 (14.0%)
$\chi^2 = 7.141, 1 \text{ d.f.}, p < 0.01$		
Right-Left confusion	22 (27.9%)	14 (15.1%)
diff <i>N.S.</i>		
Choreiform	28 (36.4%)	25 (29.1%)
(out of 77)		
diff <i>N.S.</i>		

As might be expected from the neurological findings, a wide range of motor and praxic abnormalities were also much more common in the reading backward group (see Table 2). Three-fifths of the backward readers showed constructional difficulties, as assessed by a task requiring the child to make various shapes (triangle, diamond, star, etc.) from matches (Rutter, Graham and Yule, 1970). In contrast, only a quarter of the reading retarded children had any difficulties with these tasks.

Clumsiness was assessed both clinically, as part of a standardized neurological assessment and psychometrically, using a modification of the Lincoln-Oseretsky

motor development scale (Rutter, Graham and Yule, 1970). On both methods of assessment, clumsiness was twice as common in the reading backward groups (20.2 vs 8.1 per cent on clinical judgement, and 24.1 vs 12.8 per cent on psychometric testing).

Motor impersistence is a term which has been used to denote an inability to sustain a voluntary motor act that has been initiated on verbal command. It is a developmental phenomenon which has been quantified and made into a standard test by Garfield (1964). Over a third of the reading backward children (34.2 per cent) showed abnormalities on this test compared with less than a sixth of the children with specific reading retardation (14.0 per cent).

Right-left confusion was assessed by asking each child five questions relating to right-left differentiation on his own body (e.g. point to your nose with your left hand) or on the examiner's body (e.g. point to my right hand) (Williams and Jambor, 1964). In the reading backward group 28 per cent had errors on this task compared with only 15 per cent in the reading retarded group (this difference falls short of the 5 per cent level of significance; $\chi^2 = 2.59$).

Choreiform movements, a term coined by Prechtl and Stemmer (1962) to describe certain irregular jerky movements of sudden occurrence and short duration were slightly, but not significantly, commoner in the reading backward group than in the reading retarded group (36 vs 29 per cent). However, the true difference between the groups was probably much greater than these figures suggest, as choreiform movements are twice as common in boys as in girls. When the sex difference between the groups is taken into account, the disparity between the groups on choreiform movements is considerably greater.

(d) *Speech and language features*

TABLE 3. SPEECH/LANGUAGE FEATURES AND READING DIFFICULTIES

	General reading backwardness (<i>n</i> = 79) (%)	Specific reading retardation (<i>n</i> = 86) (%)
Family history reading difficulties	35.6	33.7
Family history speech delay	8.6	10.1
First words after 18 months	34.9	32.9
First phrases after 24 months	39.8	34.3
Current articulation defect	21.5	14.0
Poor complexity of language	34.2	15.1*

* $\chi^2 = 7.141$, 1 d.f., $p < 0.01$ all other differences N.S.

A family history was obtained by a school medical officer during an interview with the parents. In both groups about a third of the children had parents or sibs who were reported to have had reading difficulties and about one in ten had parents or sibs who were delayed in their acquisition of speech. The groups did not differ in this respect and in both cases the rate was three times that in the general population control group.

Similarly, in both groups a third of the children had themselves been delayed

in speech, as assessed either by meaningful words (*other* than mama, dada, hello and bye-bye) not being used until after 18 months, or by three word phrases not being used until after 24 months. This rate is three times that in the general population.

Current speech and language functioning were tested by means of a 1 hr neuropsychiatric examination of demonstrated reliability which included at least 20 min conversation with the child (Rutter, Graham and Yule, 1970). Articulation was regarded as abnormal if there were consonant omissions or substitutions which were not part of the local dialect. Articulation defects were present in 21.5 per cent of the backward readers and 14.0 per cent of the retarded readers, the difference between the groups being not significant. Such defects were present in 6.8 per cent of the control group. Complexity of language was assessed by noting the child's use of different parts of speech, the length of sentences and the presence of subordinate clauses. Unlike the other measures of speech and language, this did show impairment to be more frequent in the reading backwardness group.

Summarizing the findings on neuro-developmental features, it may be concluded that general reading backwardness was associated with overt neurological disorder and with abnormalities on a wide range of motor, praxic, speech and other developmental functions. In contrast, reading retardation was associated to a marked degree only with abnormalities of speech and language development. The rate of other developmental abnormalities was in some cases above that in the control group (Rutter, Tizard and Whitmore, 1970) but the differences were both less marked and less differentiating than was the case with speech and language delay.

All the neuro-developmental features were found to be associated with low I.Q. (Rutter, Tizard and Whitmore, 1970), as is the case with most forms of developmental delay. Accordingly, it could be argued that the association with general reading backwardness was to be expected on the grounds of the below average intelligence of that group of children. However, this argument cannot be applied to the association between specific reading retardation and speech/language abnormalities, as the reading retarded children were of average intelligence (Rutter, Tizard and Whitmore, 1970).

(e) *Social class*

TABLE 4. SOCIAL CLASS AND READING DIFFICULTIES

	General reading backwardness (<i>n</i> = 75) (%)	Specific reading retardation (<i>n</i> = 82) (%)
Non-manual	20.0	15.9
Skilled manual	48.0	59.8
Unskilled/semi-skilled manual	32.0	24.4
difference <i>N.S.</i>		

There was some tendency for the reading backward group to contain a higher proportion of children whose fathers held an unskilled or semi-skilled manual job, and only the reading backward group differed from the general population control

group in this respect. However, overall, the social class distribution did not differ between the reading backward and reading retarded group. There were no differences between the groups with respect to family size.

It is clear from these findings that there are marked differences between the two types of reading disability on characteristics which may be of aetiological importance. General reading backwardness is a disorder present in both boys and girls, which is sometimes associated with overt neurological disorder and which is usually accompanied by abnormalities on a wide range of neuro-developmental functions including motor co-ordination, constructional abilities, right-left differentiation, motor impersistence, speech delay and language impairment. It is more commonly found in children from large families and it is also more frequent in children whose fathers have a job of very low social status. On the other hand, specific reading retardation is very much commoner in boys, is *not* often found with overt neurological disorder and is more specifically associated with delays in the development of speech and language. It, too, is commoner in children from large families but it is *no* more frequent in those from families of very low social status.

SPECIFIC READING RETARDATION AND READING BACKWARDNESS COMPARED: EDUCATIONAL PROGNOSIS

Whereas these differences certainly imply that the two types of reading disability have a somewhat different origin, it does not necessarily follow that these have any educational implications. The same study data were used to examine the children's educational prognosis in order to consider this issue (Yule, 1973).

Initially, the two groups were reading at about the same level; on average, some 33 months below the level in the general population control group. But, as implicit in the definition of the two groups, the average I.Q. of the reading backward children was about 1 standard deviation below that of the reading retarded children. Both groups were followed up to age 14½ yr when they were again individually tested; this time on the Neale Analysis of Reading Ability (as before), the Schonell spelling test and the Vernon arithmetic-maths test. In spite of their much better I.Q. level, the reading retarded children had made significantly *less* progress in reading during the 4-5 yr follow-up period, so that their reading accuracy attainment was over 6 months below the reading backward children. They had also made *less* progress in spelling, the spelling age being 8 months behind the reading backward children. In both groups, the children's spelling was even more impaired than their reading (although the regression effect would predict the opposite) suggesting that there is a *specific* association between reading and spelling.

In marked contrast to the findings for reading and spelling, just the opposite was found with respect to progress in arithmetic. On the arithmetic-maths test, the children with specific reading retardation had made *more* progress than the reading backward children (although both groups were performing below age level).

In short, the distinction between specific reading retardation and general reading backwardness *did* have educational implications of a particular kind. The reading retarded children made *less* progress in reading and spelling but *more* progress in arithmetic and mathematics. The next question clearly is: "do the two groups need

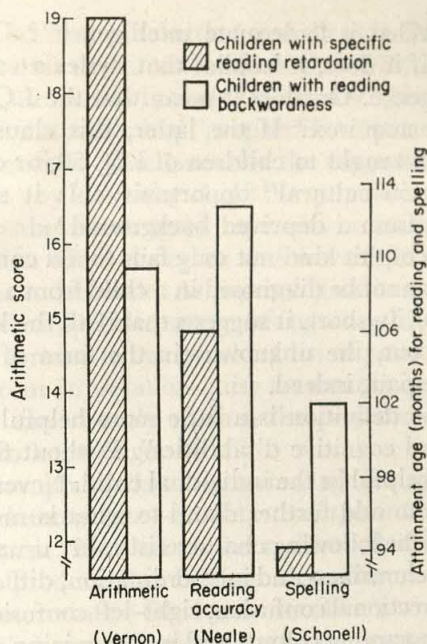


FIG. 2. Educational attainments at age 14 yr and type of reading disability.

All three within-test differences between reading retarded and reading backward children are statistically significant. It should be noted that it is not appropriate to use the histogram to make between-test comparisons as the attainments are not expressed in terms of standard scores.

different types of remedial help with their reading?" No data are available on this point but the other findings suggest that the matter warrants investigation.

"DYSLEXIA"

Although replication of these findings is needed, the results so far point unambiguously to the conclusion that the designation of specific reading retardation not only picks out a statistically distinctive group within the broader group of poor readers but also the diagnosis carries with it important clinical and educational implications. As already noted, this differentiation does not necessarily imply that the group constitutes any pathological condition but the many similarities between the characteristics of children with specific reading retardation and those attributed to "dyslexia", immediately raise the question as to whether specific reading retardation and "dyslexia" are the same thing.

To answer that question it is first necessary to ask "what is meant by dyslexia?" The World Federation of Neurology definition of "specific developmental dyslexia" states that it is: "a disorder manifested by difficulty in learning to read despite conventional instruction, adequate intelligence and socio-cultural opportunity. It is dependent upon fundamental cognitive disabilities which are frequently of constitutional origin" (Critchley, 1970). Unfortunately, the first part of this definition merely adds confusion by begging a whole series of further questions. What is "conventional instruction"? Does this mean that dyslexia is undiagnosable in a

child taught by *i.t.a.*? What is "adequate intelligence"? Does this mean average intelligence?—because, if it does, it implies that dyslexia cannot occur in children of below-average intelligence. Or, does it mean that the I.Q. must be high enough for reading skills to be acquired? If the latter, this clause is almost redundant because reading has been taught to children of I.Q. 50, or occasionally even below that level. What is "socio-cultural" opportunity? Is it suggested that dyslexia cannot occur in a child from a deprived background?

A negative definition of this kind not only fails to aid conceptual clarity but also it implies that dyslexia cannot be diagnosed in a child from a poor or unconventional background (Reid, 1969). In short, it suggests that if all the known causes of reading disability can be ruled out, the unknown (in the form of "dyslexia") should be invoked. A council of despair, indeed.

The latter half of the definition is a little more helpful in that it specifies the presence of "fundamental cognitive disabilities". Without further elaboration, this is too vague to be at all helpful in the individual child. Nevertheless, if the literature on dyslexia is consulted to add further detail to what is meant by "cognitive disabilities", it appears that the following characteristics are usually included—disorders in speech and language, clumsiness and inco-ordination, difficulties in the perception of space relationships, directional confusion, right-left confusion, disordered temporal orientation, difficulties in naming colours and in recognizing the meaning of pictures, and inadequate, inconsistent, or mixed cerebral dominance (Rutter, 1969). To this list is usually added severe and bizarre spelling errors and a family history of reading difficulties. The evidence on the importance of these features in specific reading retardation has been fully considered elsewhere (Rutter and Yule, 1973) but the findings may be briefly summarized by stating that most of these characteristics have been associated with specific reading retardation. The one exception is mixed handedness which all epidemiological studies (Belmont and Birch, 1965; Clark, 1970; Malmquist, 1958; Rutter, Tizard and Whitmore, 1970) have shown is *not* a feature. Otherwise, the characteristics supposedly associated with dyslexia are also a feature of specific reading retardation. However, they are not all equally important and it seems that speech and language difficulties and problems in sequencing are those most strongly and consistently associated with reading retardation.

The last part of the definition specifies "frequently of constitutional origin". It is not entirely clear what this is supposed to mean. If it means that the cognitive disabilities are often due in large parts to factors within the child of some kind, then this probably also applies to specific reading retardation. Of course, the nature and causation of the cognitive disabilities is not known, but the early history of speech and language delay in the absence of environmental privation suggests that, at least in a very substantial minority of the children, the disabilities are "constitutional" in that sense. On the other hand, it is often suggested that dyslexia is a specific hereditary syndrome (Critchley, 1970) and on this point the evidence is a good deal more shaky. Of course, there is abundant evidence that specific reading retardation runs in families (Rutter and Yule, 1973) but that observation is open to several interpretations. Twin studies are few and far between but the very limited series available suggest greater concordance in monozygotic than in dizygotic pairs.

Unfortunately, it is not possible to take that finding at its face value, as a consideration of the most recent series demonstrates (Bakwin, 1973). In the first instance, the sample was a volunteer one, which is likely to introduce biases. One bias it is known to have introduced is an unusually high proportion of monozygotic pairs. Secondly, and more seriously, no criteria were given for the diagnosis of dyslexia. As reading difficulties are common (by definition half the population are below average in reading just as half are above average), there can be no confidence in the finding without some specification of what degree and what type of reading difficulty was needed for the diagnosis to be made. As psychological tests were not used that was not possible. Alternatively a specific pattern of cognitive disabilities could have been used, but it was not. Reference to one of a long list of possible disabilities would not be adequate as these occur in isolation quite commonly in the general population. In short, studies of this kind merely confirm the prejudices of the investigator and completely fail to add to knowledge.

Nevertheless, let us suppose that the twin and family study do demonstrate what they purport to demonstrate—namely that specific reading difficulties have a strong genetic component. This has not been shown, but it is a reasonable assumption that studies would produce that finding. Does this mean that the syndrome of dyslexia is genetically determined? Obviously not. There are many studies which have shown that reading skills have an important genetic component (e.g. Jensen, 1969) so that, on this ground alone, reading difficulties are also likely to have a genetic component. But, is this different from the genetic component in reading generally? Is it that reading skills (superior *and* inferior) have a hereditary basis in part or is it that a specific condition (i.e. dyslexia) is inherited? There is good evidence in favour of the first alternative but the second has yet to be tested. Until it is, the genetic studies are largely non-contributory to the dyslexic issue.

In summary, the characteristics of specific reading retardation have much in common with those attributed to the syndrome of developmental dyslexia, although the specific genetic arguments must be rejected. Even so, it is generally argued that specific reading retardation is usually multi-factorially determined, whereas it is claimed that dyslexia is a unitary condition. It is suggested that the development impairment in reading retardation may be due to a relative failure in the normal maturation of certain specific functions of the cerebral cortex, *or* some neurological damage, *or* a lack of suitable environmental stimulation *or* a combination of all three. Furthermore, it is suggested that these interact with school influences, temperamental features including motivation, and family circumstances (Rutter and Yule, 1973). The evidence in favour of this multi-factorial view includes a strong association between reading retardation on the one hand and, on the other, large family size, features in the child such as poor concentration, restlessness and impulsiveness and school variables such as high teacher turnover (Rutter and Yule, 1973). It appears that language impairment (due to either some biological factor *or* environmental privation) renders the child at risk and that whether he actually shows reading retardation will depend also on his personality characteristics, the nature of his home environment and the quality of his schooling.

This view is quite different to that associated with dyslexia. Accordingly, either reading retardation and dyslexia are not synonymous *or* the concept of dyslexia

must be modified. Attempts to separate out a dyslexic core from within the broader group of specific reading retardation have failed because the children with the dyslexic developmental features overlap greatly with the children from large families or with other "non-dyslexic" background characteristics (Rutter, 1969). Furthermore, neither in a study of children with specific reading retardation (Rutter, 1969), nor in an investigation of a group regarded as dyslexic (Naidoo, 1972) has it been possible to demonstrate any clustering of the developmental anomalies said to characterize dyslexia. In short, there has been a complete failure to show that the signs of dyslexia constitute any meaningful pattern. It may be concluded that the question of whether specific reading retardation is or is not dyslexia can be abandoned as meaningless. Up to now there is no evidence for the validity of a single special syndrome of dyslexia. Dyslexia, if thought of in these terms, remains a rather dubious hypothesis with very little evidence in support.

It could be argued, however, that even well-defined genetically determined neurological disorders (such as dystrophia myotonica) may present in several different forms and that it is unreasonable to assume that there should be a single pathognomic pattern for dyslexia. That is certainly true, but there are two limitations to that argument with respect to dyslexia. The first is that if there is no recognizable pattern, then in the present state of knowledge there is no means of determining whether anyone has the hypothesized condition. Some kind of biological "marker" would be needed and so far none has been found. The second is that the rate of specific reading retardation has been found to vary markedly, so that the prevalence in London was twice as high as on the Isle of Wight (Berger, Yule and Rutter, 1974) and the available evidence (albeit circumstantial) suggests that this very marked difference in prevalence is not due to genetic factors (Rutter *et al.*, 1975). This would suggest that if there is a single genetic syndrome of dyslexia (which has yet to be shown) it must account for only a minority of cases of specific reading retardation.

CONCLUSIONS

It may be concluded that the traditional distinction between general reading backwardness and specific reading retardation has been shown to have validity.* Specific reading retardation constitutes more than just the lower end of a normal distribution in that its frequency significantly exceeds that predicted on statistical grounds. The disorder differs from reading backwardness in terms of sex distribution, neurological disorder, and pattern of neuro-developmental deficit, demonstrating the clinical validity of the distinction. It also differs in terms of a worse prognosis for reading and spelling but a better prognosis for mathematics, demonstrating the educational usefulness of the differentiation.

This differentiation may also have other educational implications. For example, the literature on the efficacy of remedial reading programmes shows that in most cases only very limited benefits have been obtained (Carroll, 1972). However,

*The only supposedly negative finding in the literature (Curr and Hallworth, 1965) used correlational techniques applied to the total population, which is irrelevant to our concern with extreme groups. Our own data (Rutter, Tizard and Whitmore, 1970) suggest that the characteristics of children at the ends of a distribution are not the same as those in the middle.

distinctions have rarely been drawn between backward and (properly identified) retarded readers. It may be that the two groups of poor readers require different remedial approaches. This possibility requires study and such study might lead to more effective remedial procedures. Whether or not this happens, it seems clear on the basis of present evidence that all those concerned with children's reading skills will have to pay closer attention to the differentiation between general reading backwardness and specific reading retardation.

The concept of specific reading retardation has received substantial empirical support. Nevertheless, while biological factors are important in aetiology, the evidence does not suggest that it constitutes a single biological entity and the concept of dyslexia (as usually proposed) remains a hypothesis for which evidence is so far lacking.

SUMMARY

Using the data from five epidemiological studies of the total child population, the traditional distinction between general reading backwardness (i.e. reading below average for age, regardless of I.Q.) and specific reading retardation (i.e. a disability in reading relative to the child's age and general intellectual level) is put to the test. The concept and measurement of underachievement are discussed and it is shown that severe degrees of specific reading retardation occur at a rate above that predicted on a statistical basis, suggesting a "hump" at the lower end of the distribution. Reading retardation is shown to differ significantly from reading backwardness in terms of sex ratio, neurological disorder, pattern of neuro-developmental deficits and educational prognosis. It is concluded that the concept of specific reading retardation is valid, but evidence is discussed which shows that this does *not* support the view of a genetically distinct syndrome of dyslexia.

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ASPECTS OF DEPENDENCE-INDEPENDENCE CONFLICT IN CHILDREN WITH ASTHMA

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MOST CLINICIANS recognise that, besides infection and allergy, "psychological factors are important in understanding asthma in children. The delineation of these psychological factors has concerned a number of workers since the original work of Rogerson, Hardcastle and Duguid (1935). However, Freeman *et al.* (1964) in reviewing the literature, concluded that although French and Alexander (1941) developed most detailed hypotheses about these psychological factors, their hypotheses had not been adequately tested despite the wealth of suggestive material.

Alexander stated one of the core hypotheses thus: "*the asthma conflict appears as a clash between two tendencies—one, driving the patient away from the dependence upon the mother and the other, a fearful regressive tendency toward a dependent, infantile attitude towards the mother*". (French and Alexander, 1941, p. 69.) He also postulated from his clinical findings that in the face of the threatened separation of mother and child, the nature of the regressive response would involve a type of dependence which was "claustral" in nature. By "claustral dependence" is meant a desire in the child to re-establish a close physical union with the mother, similar to that which existed prior to birth, physically protected, enclosed, with complete passive dependence.

Little and Cohen (1951) and Morris (1961) investigated the independence side of this postulated conflict by using the level of aspiration technique. Long *et al.* (1958) made a preliminary attempt, with clinical interviews and standard psychological techniques, to investigate the conflict and were able to show findings suggestive of claustral dependence, but their results were never fully reported.

The present study set out to investigate both sides of the core conflict as postulated by Alexander. Using a random sample of asthmatic and control school children, an experimental design was employed which involved extending the work of Morris (1961), and modifying the work of Long *et al.* (1958) by developing more refined techniques. A further aim was to test whether this core conflict, with its associated characteristic "claustral dependent" response to threatened mother-child separation, was specific to asthma. An additional control group of children with chronic chest disease was included for this purpose.

THEORETICAL BASES AND HYPOTHESES

In the normal child there is a natural movement toward growth shown by increasing independence and aspirations for personal individuation and achieve-

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ment. At times, some minor regressive phenomena appear but these are minimal.

It is postulated that in the asthmatic child the pull towards independence shown by achievement and the pull towards dependence shown by regression are

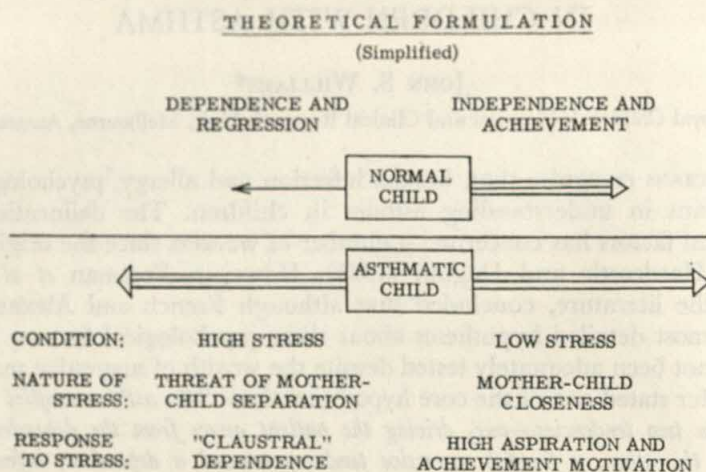


FIG. 1. Schematic representation of the characteristic conflict of the asthma child compared with the development of the normal child.

both excessive. This is diagrammatically represented in Fig. 1 by the boldness and length of the lines.

Conditions conducive to development and achievement are those of low stress while conditions conducive to regression are those of high stress.

The principal high stress situation for the asthmatic child is the threat of mother-child separation, but with mother close the stress is eased. It is recognised that if the mother-child relationship is too close, it also may be threatening but this is not under consideration in this study.

Accordingly, it is postulated that the mother-child bond will be closer in asthmatics and that under conditions of threatened mother-child separation, claustal dependence themes will appear as opposed to other types of regression such as active clinging and also in contrast to more independent or sublimatory activity, when compared with controls. It is also postulated that levels of aspiration on a simple motor task will be higher in asthmatics than controls with mother close, but lower than controls when mother is sent away and the child is alone. Further, that in fantasy behaviour the asthmatic child's achievement motivation will be higher than controls and that the mother will play a more significant role in the asthmatic child's need to achieve.

SAMPLE

The asthmatic and control subjects were sub-sampled from the randomly selected sample of children in normal schools in the Melbourne Metropolitan area who were being studied epidemiologically in order to determine the prevalence and

the natural history of asthma as well as the aetiological factors concerned and their relationship (Williams and McNicol, 1969).

TABLE 1. THE SAMPLE

Group I	45 mildly asthmatic children	45 triads matched on 9 control variables	19 matched tetrads (same variables)
II	45 severely asthmatic children		
III	45 normal control children		
IV	19 control children with fibrocystic disease		

Forty-five children with "mild"* asthma were randomly sub-sampled from the 113 randomly selected asthmatics in the epidemiological study. From the 105 randomly selected normal controls from the same study, 45 were chosen to match in pairs on the variables discussed later.

These two groups were then studied and a year later a group of 45 severe asthmatics were chosen from 83 randomly selected severe asthmatics (Gillam *et al.*, 1970), forming matched triads. At the same time, 19 children with fibrocystic disease, almost the whole population within the age group who lived in Melbourne, were studied to form a second control group. These were matched with the subjects in the other three groups to form 19 tetrads. The sample therefore comprised two control groups and two experimental asthmatic groups differing in severity.

Definitions

Severe asthma. This group was characterized by an early onset of asthma, frequent and persisting attacks, and evidence of persistent airways obstruction or barrel chest deformity.

The criteria of selection were:

1. Onset before 3 yr of age. (In fact 50 per cent had an onset before 1 yr and 70 per cent before 2 yr.)
2. Persistent symptoms with either:
 - (a) at least 10 asthma attacks in the previous 2 yr, or
 - (b) long periods of persistent wheezing during that time.
3. Barrel chest deformity and/or evidence of airways obstruction when an overt wheezing attack was absent ($F.E.V. 0.5/V.C.$ † ratio of 50 per cent or less. Gillam *et al.*, 1970).

"Mild" asthma. In this group the mean onset age was much later. The attacks were less frequent, did not persist, and were clearly episodic. Most of the children did not show objective evidence of airways obstruction between episodes as did the severe group.

Of the 45 in the group, 2 had had less than 5 attacks over their life span; 19 more than 5 but less than 10 attacks with no episodes during the previous year, and

*The term "mild" is used throughout in contradistinction to "severe" and includes what some physicians would call "moderate" asthma as well.

† $F.E.V.$ —Forced expiratory volume; $V.C.$ —Vital capacity.

24 at least 20 attacks with at least one episode of wheezing within the previous year.

Fibrocystic disease. This is a recessively inherited disease in which there is chronic pulmonary infection with airways obstruction but no wheezing. The patients were under continuing medical care and at times required hospital treatment. These children therefore formed a control over the variables of chronic disease and chronic chest infection. Although no objective evidence can be cited, there was a consensus of medical opinion that the severe asthma group and fibrocystic children would have had roughly similar separation experiences with regard to frequency and duration of in-patient treatment.

CONTROL OF VARIABLES

Those variables considered important to control in matching subjects appear in Table 2. All those variables listed, except intelligence which was not known until after the subjects were seen, were utilised in constructing the triads and tetrads. It is impossible to show the matching of each triad or tetrad but the group data are summarised.

TABLE 2. CONTROLS. GROUP DATA OF THE VARIABLES USED IN MATCHING THE FOUR GROUPS OF SUBJECTS

		Asthma groups		Control groups	
		Mild	Severe	Normal	Fibrocystic
Subjects	<i>N</i>	45	45	45	19
Sex	Male	32	32	32	11
	Female	13	13	13	8
Age (yr)	Mean	10.9	11.1	10.9	11.3
	S.D.	0.6	0.6	0.7	1.1
Socio-economic level*	Median	2.8	2.7	2.7	2.9
	Range	1-5	1-5	1-5	1-4
Formal family characteristics	Normal	43	43	44	18
	Irregular	2	2	1	1
Australian nationality		45	45	45	19
	Parental birthplace	43	43	42	18
Position in family	Brit. subj.	2	2	3	1
	Other	3	1	2	3
	Eldest	15	13	22	5
	Youngest	14	16	9	6
Number of siblings	Intermediate	13	15	12	4
	Median	1.8	2.3	2.1	1.8
Intelligence (Binet <i>L</i> Abbrev.)	Median	109	108	106	102
	<i>Q</i> ₁	98	93	94	87
	<i>Q</i> ₃	120	119	120	113

*A 5 point scale using categories from *Victorian Yearbook* (1967).

For the triads, the variables of sex, age, socio-economic level, formal family characteristics (e.g. normally intact family or irregular such as adopted, separated parents) nationality and parental birthplace match well. Position in family and number of siblings were more difficult to control but for each triad the discrepancy was minimal.

Intellectual level was assessed briefly for control purposes by the normal abbreviated version (starred items) of the Revised Stanford-Binet, Form L and no detailed analysis was made if the I.Q. fell below 80 or above 120, which explains why medians and interquartile ranges are given. (Note that this data would not support the long-standing belief, probably initiated by Rogerson *et al.* (1935) that asthmatics are intellectually brighter than non-asthmatic children.)

The data in Table 2 for fibrocystic children can only be compared realistically on age, (where they were just a little older and had a wider distribution), socioeconomic level, number of siblings and intelligence, where they were somewhat duller but not significantly so. Nevertheless in each particular tetrad there was a "good fit" of variables.

Other controls also applied. The physical conditions were held constant, the same instructions given, and the same routine applied to each subject except that certain procedures were randomised to counteract serial effects.

The one experimenter was employed throughout the whole study and he was kept unaware of the group identity of each subject. Hence, each subject was seen "blind".

TECHNIQUES

1. The Rotter Aspiration Board (Rotter, 1942) was used to assess the level of aspiration in overt behaviour across the four groups, under three conditions of mother involvement and two conditions of stress. This was, therefore, a $4 \times 3 \times 2$ design with repeated measures.

The technique was essentially that described by Rotter (1942) except that there were four shots to each trial and eight trials for each condition. At the beginning of each trial the child was asked to estimate what his next trial total would be. The difference between his last trial total (which was reported verbally to him) and his future estimate was used as the measure of his aspiration, taking cognizance of the direction. That is, either a plus or minus deviation was possible. The algebraic sum of these deviations over the eight trials was taken as the aspiration score for each condition.

The two levels of stress conditions were (a) lower stress with the aspiration board used normally. (b) Heightened stress when a visual barrier was placed over the board so that the child did not get immediate feedback from each shot but only the total trial score.

The three conditions of mother involvement were (a) "mother-active" condition in which mother and child were physically close and together (by verbal interaction) they reached a common decision on each estimate; (b) "mother-passive" condition in which the mother was present in the room, could see and hear what was going on but was not involved in the child's task and, overtly at least, not interacting with him; (c) the "child-alone" condition in which the mother was outside a closed door.

2. The Semantic Differential (Osgood *et al.*, 1957) with three concepts ("sickness", "my husband", and "the best husband I can imagine"), used purely as an interpolated task to keep the mother occupied in the room during the "mother-passive" condition of the level of aspiration experiment.

3. An Achievement Motivation Test to assess, at a fantasy level of behaviour, the child's need for achievement. It was originally intended to use the technique of McClelland *et al.* (1953) but it became apparent after a pilot study that it was not appropriate for this sample of children. A completely new test was designed. Like McClelland's test, it is projective, with standardised questions and objective in its scoring. The theoretical basis for the test attempts to incorporate the early theory of McClelland and the later findings reported by Atkinson and Feather (1966). Accordingly several modifications were employed. (a) Six stimulus pictures were used. (See Appendix A.) (b) The important figures in the child's life namely mother, father, siblings and peers were included in the stimulus cards. (c) The stimulus cards were deliberately constructed with varying degrees of overt

achievement characteristics. (d) The scoring, like that of McClelland (1953) is objective and includes needs, expectancies, affective concomitants, nurturant press, barriers, goals, achievement thema, etc. Unlike McClelland's system it includes the subject's perception of other significant figures' needs, expectancies, etc. for him and furthermore the scoring includes those factors working against achievement. This latter is what Atkinson and Feather (1966) call fear of failure. Their method of assessing for this is by a questionnaire technique which may be tapping a different level of fantasy than that of achievement motivation which they assess projectively. (c) The standardised questions were administered verbally and recorded by the tester—unlike McClelland's test. (f) With these conditions the range of scores is increased considerably—scores between -5 and $+57$ have been obtained. This allows for greater discrimination between subjects, and a clearer clinical picture of the process of achievement motivation.

4. *A Sentence Completion Test* (see Appendix B) designed for this research was given to both mother and child. The mother filled it out on her own while the child had the same stimuli verbally presented and the responses were recorded by the experimenter. The 40 incomplete sentences were designed to evoke feeling responses over a number of areas including claustral situations, threat of separation, general anxieties, needs and relationships. As mother and child were given the same test it provided a good opportunity to assess the bond between them.

5. *A Picture Completion Test* (see Appendix C) designed for this study, was given to the children of the mild asthma group and the normal control group. It was intended to tap claustral dependence as a response to threat of separation. Contrary to expectations in a pilot run, claustral themes were relatively few due to the test not distinguishing adequately enough between actual mother-child separation and the threat of separation. A second test was therefore designed emphasising the latter stimulus and both were administered to the severe asthma group and the fibrocystic group.

Claustral themes are not very common in any subject either in projective material or in the content of a therapy until a long term relationship has been established and the child feels safe to regress. As there was no time in this experimental study to allow such a relationship to develop, a multiple choice technique seemed necessary which included an opportunity for a claustral response.

In both tests two pictures were presented and a story was begun which involved a threat of separation of mother from child or vice versa. The child was then asked to choose from five pictures the one which best showed how the story ended. There were seven stimuli in each test and five possible responses (see Appendix C). For each stimulus the child could choose between a claustral, clinging, crying, individual sublimatory or social sublimatory response. The response cards were laid out in a predetermined randomly selected order which was the same for each subject.

METHOD

The procedure is sequentially laid out in Fig. 2.

The Rotter Level of Aspiration Apparatus was given first. The three conditions of mother involvement, mother active, mother present but passive and the child alone (A, B, C and a, b, c) were randomised in presentation within subjects and the two conditions of no visual barrier and visual barrier were randomised between subjects to counteract serial effects. In the mother passive condition (B and b) the mother was employed with the Semantic Differential.

Between the two barrier conditions the estimate of intellectual functioning was made (abbreviated version, Revised Stanford-Binet Form L) and the Achievement Motive Test administered.

On her last exit from the room the mother was handed an instruction to go by herself to a room distant from her child where she would find further instructions of what to do. A little later the child was taken out ostensibly to get mother as had been done before. When the child found his mother was not there, no explanation was given and he then was ushered back in to do the Sentence Completion and Picture Completion tasks. At the same time the mother was filling out her identical Sentence Completion in another room. On such experimental separation, one child wheezed in the mild asthma group and three in the severe asthma group.

RESULTS

Because the subjects were matched, unless otherwise stated, p values referred to are based on a statistic A formulated by Sandler (1955) which is a direct trans-

METHOD

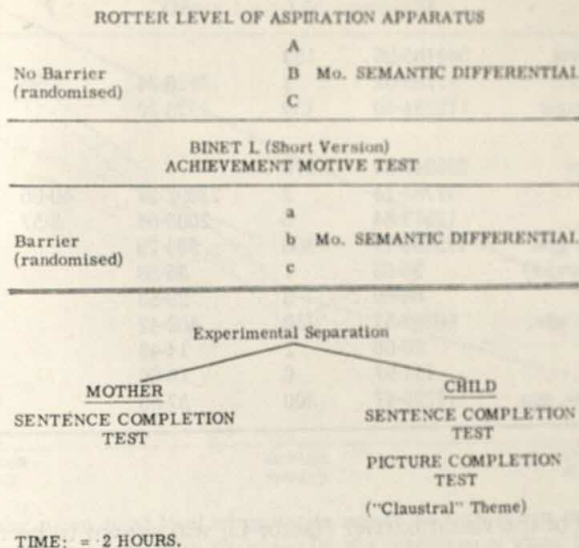


FIG. 2. Flow chart of the methodological sequence. To counteract serial effects, the mother involvement conditions (A, B, C, and a, b, c) were randomised within each barrier condition. The barrier conditions, as a whole, were also randomised.

formation of Student's t test of significance between means. It is much easier to calculate yet retains all the power of Student's t . It was decided to use $\alpha = 0.05$ as the acceptable significance level.

1. *Rotter level of aspiration experiment.* The level of aspiration would be difficult to interpret if the actual performance scores were not similar. The higher the child scores the less likely he would be to raise his level of aspiration in this experiment as there is a definite ceiling at a score of 40 (a trial was 4 shots with a possible maximum score of 10 per shot). There was no significant difference between the groups or across the three mother involvement conditions in any group within the no visual barrier condition, the overall mean score being 22.7. A similar situation existed in the visual barrier condition but the overall mean score of 20.9 was significantly lower. In fact each group in each mother involvement condition showed a significant lowering in performance ($p = 0.05$ or less) when the visual barrier was in position. This demonstrated that the task was harder, and equivalently so, for each group and therefore presumably more stressful as was intended.

The analysis of variance of the level of aspiration (Table 3) was a $4 \times 3 \times 2$ analysis having repeated measures. The groups were shown to differ significantly overall at better than the 5 per cent level.

The influence of the mother's involvement (factor B) was a highly significant factor ($p < 0.005$) with normal control subjects contributing least to the difference. As this was a major factor in three out of the four groups the interaction of mother involvement with groups was also highly significant ($p < 0.005$).

TABLE 3. ROTTER LEVEL OF ASPIRATION EXPERIMENT. ANALYSIS OF VARIANCE

Source	<i>SS</i>	<i>d.f.</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Between subjects	542185.96	153			
A	11785.02	3	3928.34	2.96	< 0.05
Subj. w. groups	119234.40	150	1328.20		
Within subjects	326947.34	770			
B (mother)	47784.74	2	23892.37	40.86	< 0.005
AB	12513.84	6	2085.64	3.57	< 0.005
B x subj. w. gps.	175438.19	300	584.79		
C (visual barrier)	36.58	1	36.58		
AC	88.60	3	29.53		
C x subj. w. gps.	60363.57	150	402.42		
BC	28.86	2	14.43		
ABC	111.97	6	18.66		
BC x subj. w. gps.	17298.47	300	57.66		

The influence of the visual barrier (factor C) was shown to be not significant in the overall picture. However, it clearly did have a singular effect on the severe asthma group. As this factor contributed such a trifling amount all the other interactions were negligible.

As the visual barrier was not a significant influence, the visual barrier conditions have been combined in Fig. 3 to show the overall pattern of level of aspiration. The scores represent the mean for each group over the series of eight trials. That is, the scores are eight times the mean difference between the child's last performance and his next estimate.

Normal control subjects were significantly influenced by mother's active participation ($p = 0.05$) compared with the other two conditions (mother passively present and the child alone) which did not differ significantly from each other. This demonstrates that normal 10 yr old children are still somewhat dependent on their mother.

Mild asthmatics showed an even greater dependence on mother in two ways. Estimates were significantly higher than controls ($p = 0.05$) when mother was active but with increasing physical distance so their estimates drop ($p = 0.01$ in each case), with very little aspiration evident when they are alone. Clearly mother was a much more significant person for mild asthmatics and the gradient of the line represents a measure of their dependence.

The same significantly different pattern from normal controls held true with severe asthmatics except that under each mother condition there was a greater drive for aspiration on the one hand, yet a strong regressive tendency as mother moved away.

These two asthma groups differed in pattern from normal controls. The important question was whether the independent variable was asthma or chronic sickness. Taking the chronic chest infection controls, the fibrocystics, the pattern they showed was significantly different again.

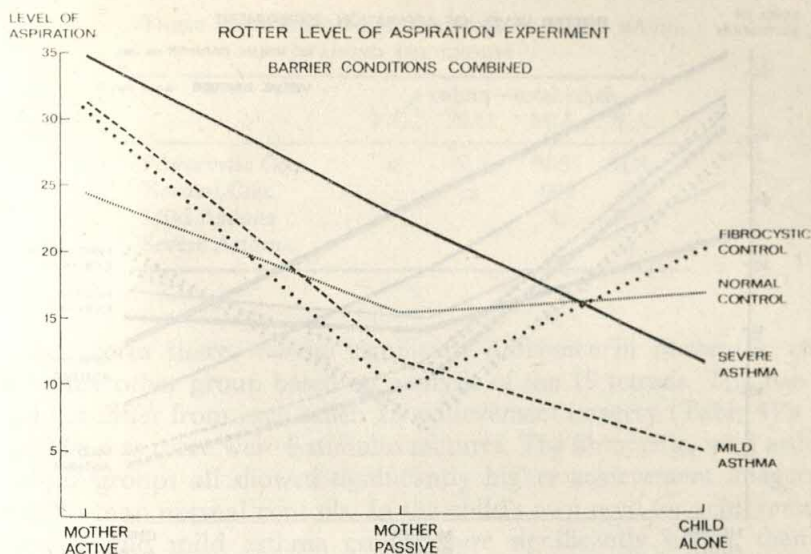


FIG. 3. Graph of the mean total level of aspiration scores for each group over 16 trials on each condition of mother involvement, with the scores for the conditions of visual barrier and no visual barrier combined. (Aspiration scores have been halved in this combined graph for direct comparison with Fig. 4 where each point represents 8 trials.)

There was a marked dependence on mother when she was present with high aspiration when she was actively helping but regression ($p = 0.01$) when she was passively present. If she were present the child could afford to be highly dependent. However, when she was not present the child gathered together his own resources and aspired high. Such a pattern of behaviour has been observed clinically by those who work closely with fibrocystics. The important point is, however, that the asthmatic pattern of response appeared to be unique or specific to asthma. The independent variable appeared to be asthma and not chronic illness, or chest infection.

In Fig. 4 the influence of the visual barrier has been singled out. In the normal controls there was a non-significant reduction in level of aspiration with the increased stress of the visual barrier. A similar situation existed in the mild asthmatic group. The fibrocystic group differed in that the visual barrier stimulated a higher level of aspiration in the condition of child alone but not to a significant extent.

In severe asthmatics the higher stress condition significantly ($p = 0.05$) raised their aspirations. This type of stress situation did not stimulate them to regressive behaviour which is in accord with the original hypothesis. That is, it was the perceived stress of threat of separation from mother which produced regression (lower level of aspiration) and not stress in general.

2. *The semantic differential.* No significant differences were found among the mothers of the children in the four groups. In fact, the mothers acted as a homogeneous group on all three concepts.

3. *The achievement motive test.* Table 4 contains a partial breakdown of the internal

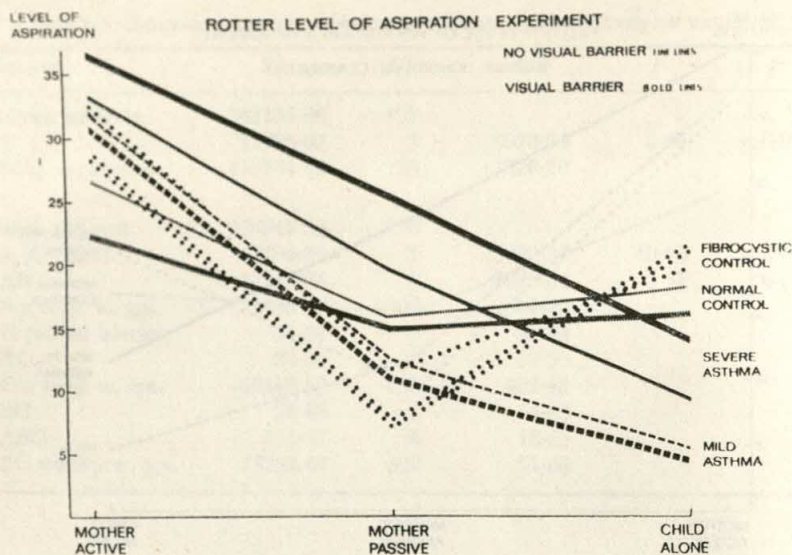


FIG. 4. Graph of the mean total level of aspiration scores for each group over 8 trials on each condition of mother involvement showing the influence of the visual barrier (bold lines) compared with the no visual barrier (fine lines).

TABLE 4. PARTIAL BREAKDOWN OF INTERNAL SCORING OF THE ACHIEVEMENT MOTIVE TEST.
UNDERLINED SCORES PERTAIN TO THE HYPOTHESES

	Normal control	Fibrocystic control	Mild asthma	Severe asthma
Achievement imagery	3.14	3.89*	3.85*	3.77*
Child	3.80	5.00*	<u>5.11*</u>	<u>4.50</u>
Mother	0.50	0.73	<u>0.95*</u>	<u>0.80*</u>
Father	0.78	0.68	0.81	0.69
Others	0.43	0.32	0.65	0.53
Instrumental activity	1.22	0.58*	2.06*	1.02
Barriers Score	-0.02	0	0.11	0.11
(Mean No.)	0.38	1.26*	0.39	0.42)
Goals	2.26	2.52	2.65	2.36
Achievement thema	1.55	2.80*	2.48*	2.00
Total nAch	13.66	16.52	<u>18.66*</u>	<u>15.78*</u>

*Significantly different ($\leq (p 0.05)$ from normal controls.

scoring of the Achievement Motive Test. Significant differences ($p \leq 0.05$) between each of the experimental groups and the normal control group are starred. Only those scores which are underlined will be discussed as these pertain to the hypotheses. Both asthma groups showed significantly higher total nAch scores than the normal controls as predicted (see Table 5).

TABLE 5. SIGNIFICANT DIFFERENCES IN TOTAL nAch
AMONG THE GROUPS

	<i>p</i> values—total nAch			
	F.C.	N.C.	M.A.	S.A.
Fibrocystic Con.	x	N.S.	N.S.	N.S.
Normal Con.		x	.005	.05
Mild Asthma			x	N.S.
Severe Asthma				x

On total scores there was no significant difference in fibrocystic children's scores from any other group based on analysis of the 19 tetrads. The two asthma groups did not differ from each other. In achievement imagery (Table 4) a possible score would be 6 as there were 6 stimulus pictures. The fibrocystic, mild asthma and severe asthma groups all showed significantly higher achievement imagery scores (all $p = 0.05$) than normal controls. In the child's own need for achievement only the fibrocystic and mild asthma groups were significantly higher than normal controls ($p = 0.05$ and $p = 0.01$ respectively). In the child's perception of his mother's need for him to achieve, only the two asthma groups showed significantly higher scores than the normal controls, as predicted.

The evidence shows that the asthmatic children differed from normal controls in their achievement fantasy. Compared with fibrocystic children, although total nAch did not differ from the children with asthma, the internal patterning of contributory scores was different; it is this fact which suggests that there is specificity in the asthma children's responses.

For example, there was very little difference in the actual barrier scores, which are the algebraic sum of perceived barriers to achievement which are overcome by goal attainment, less those which are not overcome. The fibrocystic children showed an actual barrier score of zero but the mean number of barriers seen in their fantasy about achievement were about three times greater than in the asthma groups. It is queried whether this represents an awareness in the fibrocystic children of their short life expectancy.

4. *Sentence completion test.* The full analysis of the Sentence Completion Test will be included in a later paper when some reliability studies can be incorporated and comparisons made with siblings of asthmatic children.

The present analysis is confined to the hypothesis that the mother-child bond is stronger in asthmatic children than others.

As the mother and child both completed the same sentence completion test at the same time their responses are directly comparable. One method of assessing the close bond between asthmatic children and their mothers was to tally the number of "contiguities" at a purely semantic level. This required no psychological interpretation but was taken on words alone.

A contiguity was defined by one of three criteria: (a) same words used; (b) synonymous words, e.g. child responds "(When I am alone) it is awful" and mother responds "(When I am alone) it is terrible"; (c) synonymous expression, e.g. child

responds "(Just now I would like) a drink" and mother responds "(Just now I would like) a cup of tea".

A discontinuity was defined as the opposite of a contiguity, e.g. child responds "(When I am alone) I'm happy" and mother responds "(When I am alone) I am sad".

Table 6 shows the results of this analysis. Only the 19 tetrads were utilised but the same pattern was obvious throughout the remaining subjects.

TABLE 6. MEAN SCORES AND SIGNIFICANCE LEVELS OF CONTIGUITIES (MEASURE OF MOTHER-CHILD BOND) AMONG THE FOUR GROUPS

Sentence completion test				
Semantic mother-child contiguities				
	Mean scores			
	Contiguities	Discontiguities		
Fibrocystic Con.	2.58	0.47		
Normal Con.	3.07	0.44		
Mild Asthma	4.62	0.53		
Severe Asthma	3.76	0.42		
	Contiguities			
	<i>p</i> values from Wilcoxon Test			
	(19 tetrads)			
	F.C.	N.C.	M.A.	S.A.
Fibrocystic Con.	x	N.S.	0.02	0.02
Normal Con.		x	0.005	0.02
Mild Asthma			x	N.S.
Severe Asthma				x

Discontiguities were fairly rare but as the *p* values determined by the Wilcoxon Pair Comparison Signed-Ranks Test show, the contiguities were significantly higher in both asthma groups when compared with both control groups. This was considered to be a demonstration of a closer bond in the asthmatic mother-child relationship than the bond which existed in control mother-child relationship.

5. *Picture completion test.* The first Picture Completion Test given to all four groups had a stimulus value more like that of actual mother-child separation while in the second test the stimulus was much more clearly threatened mother-child separation.

Table 7 summarises the data on the two tests. The individual sublimation, social sublimation, crying and clinging responses have not been analysed for statistical differences. In claustral themes the fibrocystic children score least, followed by normal children and then the asthmatic children. (Picture Completion Test 1.)

The significant differences among the groups is shown in Table 8. (Note that the difference between fibrocystic children and normals is in the reverse direction to the other levels.)

In Picture Completion Test II the threat of mother-child separation increased the claustral themes dramatically. The severe asthmatic children responded with

TABLE 7. MEAN VALUES OF RESPONSES FOR BOTH PICTURE COMPLETION TESTS

Picture Completion Test I					
Stimulus = mother-child separation					
	Mean values				
	Ind. Sub.	Soc. Sub.	Crying	Clinging	Claustal
Fibrocystic Con.	1.74	0.63	2.36	1.74	0.53
Normal Con.	1.29	0.22	2.46	2.03	0.90
Mild Asthma	0.98	0.20	2.94	1.75	1.14
Severe Asthma	1.00	0.29	2.17	2.30	1.22
Picture Completion Test II					
Stimulus = threatened mother-child separation					
	Mean values				
	Ind. Sub.	Soc. Sub.	Crying	Clinging	Claustal
Fibrocystic Con.	1.26	1.16	1.20	1.74	1.62
Severe Asthma	0.87	0.73	1.02	1.62	2.76

TABLE 8. *p* VALUES OF CLAUSTRAL DEPENDENCE THEMES FOR BOTH PICTURE COMPLETION TESTS

Claustal dependence themes				
Picture Completion Test I				
	<i>p</i> values from Wilcoxon Test			
	F.C.	N.C.	M.A.	S.A.
Fibrocystic Con.	x	0.02	0.05	0.0005
Normal Con.		x	0.04	0.025
Mild Asthma			x	0.05
Severe Asthma				x
Picture Completion Test II				
Based on 19 matched pairs				
Fibrocystic Con.	$p = 0.002$			
Severe Asthma				

claustal themes more frequently than any other responses. Fibrocystic children came close to a random distribution of responses (i.e. a score of 1.4 in each category) and hence were significantly lower in claustal themes.

The false results on the pilot run with Picture Completion I turned out to be a fortuitous mistake to allow the highlighting of this very specific anxiety of threatened mother-child separation as against actual separation.

DISCUSSION

Surveys of the literature, especially that of Freeman *et al.* (1964) point out serious deficiencies which have been present in many research studies into asthma. At least five problem areas can be identified.

1. *Samples.* Group studies, in the main, have been carried out on small samples, which, without exception, have been selected from highly biased clinic or hospital

populations. French (1950) recognised that although the psychoanalytic hypotheses held true for the patients he treated, these patients demonstrated considerable emotional distress in order to find it necessary to seek help. He did however predict that the same conflicts would be found in less disturbed asthmatic patients. The problem therefore arises of making generalisations about the whole asthma population and the question arises whether the degree of conflict is related to the severity of asthma. The work of Knapp and Nemetz (1957) was suggestive of a strong positive correspondence.

2. *Design and method.* Strictly experimental studies have been rare and adequate controls have been lacking. Failure to report detailed methodological procedures has been an obstacle to repeating studies. Lack of strict definition of variables has hindered statistical analysis and reduced the effectiveness in communicating findings.

3. *Techniques.* With few exceptions, most studies have confined themselves to clinical interviews and standard psychological techniques. Interview material in the long term single case studies has been most rewarding in suggesting parameters of investigation and specific hypotheses to test. The careful and well documented case studies of French and Alexander (1941), Jessner (1955), Coolidge (1956), Sperling (1968) and others have all emphasised the importance of the mother-child relationship and the threat of separation as basic to the problem of asthma. Verification, by experimental means, has been difficult because techniques such as the T.A.T. (Murray, 1938) or standard questionnaires are too gross to examine the nuances of specific hypotheses. The reason for some equivocal and even contradictory results in the literature may well be due to the use of "blunt" instruments.

4. *Replication of research.* Case studies have tended to produce similar findings in the study of psychological factors in asthma but very few experimental studies have been replicated.

Only by replication of research can inconsistencies and contradictions between studies be resolved. Little and Cohen (1951), for example carried out a study of level of aspiration in asthmatic children using a dart board technique. Cohen (1956) repeated his own experiment but found lack of agreement between the two studies. This stimulated Morris (1961) to refine the technique, using a Rotter level of aspiration board. He was able to demonstrate that Cohen (1956) had not systematically controlled the mother-child interactions.

Perhaps the paucity of repeated experiments stems from the lack of definition of variables in reported studies and the failure to record in detail the actual procedures involved.

5. *Specificity.* In earlier studies into asthma (Rogerson, Hardcastle and Duguid, 1935; Dunbar, 1954) attempts were made to demonstrate a type of personality structure which was specific to asthma. When this failed, specific conflicts were investigated. Such an approach is now commonly accepted yet some workers suggest that the common psychological factors are the result of suffering from asthma. The common features in emotional functioning then became reactions to the frustrations of chronic sickness. Neuhaus (1958), for example, could not demonstrate any significant differences between asthmatic and cardiac children. One possible

explanation of this finding is that the techniques used were not sensitive enough to differentiate the groups in the core conflicts.

The present study set out to meet some of the difficulties encountered in these five problem areas.

1. The sample was fairly large and randomly drawn from a parent population of *ca.* 50,000 ten year olds, with the independent variable of asthma clearly defined at two degrees of severity. This allowed testing and verification of French's prediction that the core conflict, irrespective of the severity of the disease, was present in the general population of asthmatic children, and not confined to children who were emotionally disturbed.

2. An experimental design was attempted with variables operationally defined and capable of statistical manipulation. Particular emphasis was placed on control aspects.

3. New techniques were designed to test specific hypotheses. These techniques were ostensibly capable of measuring those variables repeatedly shown to be important in case studies yet normally confined to a clinical setting.

4. The work of Morris (1961) into level of aspiration was in part repeated and further refined just as he had previously repeated that of Cohen (1956). The value of replication has been demonstrated in that consistent results are appearing.

5. By incorporating the fibrocystic control group, the variables of both chronic chest infection and chronic sickness were controlled. The results go some way toward suggesting the core conflict and characteristic response to threat of separation being specific to asthma. There is no evidence supporting the concept of these characteristics being reactive to the sickness itself. In another sense, specificity has also been demonstrated in that the results clearly show that stress, in itself, is not a stimulus to regression in the asthmatic child. Threat of separation from mother appears to be the particular stress which activates the characteristic claustral response.

A number of questions arise which suggest avenues for future research around this area of specificity. Is the mother-asthmatic child relationship different to other relationships in the family? The bond of a non-asthmatic equivalent age sibling to the mother of an asthmatic child is currently being investigated in order to test if this relationship differs from the asthma child-mother pair. The findings of this study could differentiate the asthmatic child from other psychosomatic complaints. A further question also arises. Is the fibrocystic group of children too special a group to form a control in these circumstances? Another control group with chronic chest sickness, children suffering from bronchiectasis, could be employed to answer this question.

It is recognised that Alexander's hypothesis concerning the asthma conflict has not been tested directly. It may be that level of aspiration is not a good measure of dependence-independence. It may also be that Alexander's claustral dependence as shown in the dreams of his children does not correlate with the claustral theme in the Picture Completion Tests. The validity would be difficult to test. Nevertheless, statistically significant results have been found and this is reason enough to either replicate and refine this study or at least experimentally follow up the basic hypothesis by other means.

Asthma is a most prevalent, distressing and debilitating disease; it deserves more systematic and intensive research, especially from a developmental standpoint. Although this study was concerned with 10-yr-old children, from a theoretical viewpoint it was concerned with the nature of the mother-child interaction at the height of the developmental period concerned with separation. This period, from about 8-18 or more months correlates with the most frequently occurring time of onset of asthma symptoms. A prospective study of children with infantile eczema would capture a number of potentially asthmatic children and studying the nature of the mother-child relationship, around the time of onset and following, could be most rewarding.

CONCLUSIONS

From this data the following tentative conclusions can be drawn.

1. The asthmatic child, in all degrees of severity of the disease, displays a greater conflict about independence-dependence than normal children.
2. There is a closer bond between the asthmatic child and his mother than in the normal mother-child situation. (Evidence from semantic contiguities in the Sentence Completion Test and the changing aspiration level with degrees of mother involvement in the Rotter Aspiration Experiment.)
3. In overt behaviour, asthmatic children aspire higher than normal children when the mother is close yet aspire lower, and hence regress, as she moves away. (Rotter Aspiration Experiment.)
4. In fantasy behaviour asthmatic children display a higher need for achievement than normal children and perceive their mothers as having a higher need for them to achieve (Achievement Motive Test).
5. The threat of separation from mother appears the specific stress situation which stimulates regressive behaviour in the asthmatic child. The stress of a harder task stimulated the severe asthmatics into higher aspirations (Rotter Aspiration Experiment and Picture Completion Tests).
6. One characteristic response of the asthmatic children when threatened with mother-child separation was claustrophobic dependent behaviour as postulated by Alexander (Picture Completion Tests).
7. Although the independence-dependence conflict was excessive in both the mild and severe groups of asthma, the intensity of the conflict was greater with greater severity of asthma.
8. Not only are the asthmatic children different from normal children in these parameters but also different, to a significant degree, from fibrocystic children. This suggests that the independence-dependence conflict with its characteristic anxiety and type of response is specific to asthma and does not result as a reaction to chronic chest infection or chronic illness.

SUMMARY

The study set out to verify by the experimental method several hypotheses arising out of the analytic literature concerning the dynamics of the asthmatic child.

Two groups of asthmatic children, differing in severity, were matched and compared with two control groups, one normal and the other with chronic chest disease. The asthmatic and normal children were drawn from random samples of the 10-yr-old population within the Melbourne (Australia) Metropolitan Area. The asthmatic children demonstrated an excessive dependence-independence conflict with an intensive mother-child bond and core anxiety around the threat of separation. Under such a threat "claustral" themes were more predominant. It was tentatively concluded that this complex of variables was specific to asthma.

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APPENDIX A

The achievement motive test

The following is a description of the six stimulus cards with the rationale for their selection.

Card 1. Young school age boy sitting, head in hand, in front of a piano in some need of repair. Designed as a child alone situation, where barriers to achievement are obvious.

Card 2. Adult male, head in hand, observing a school age boy working with pencil and paper, and an open book on the table. Designed to elicit the child's perception of an adult male's need for him to achieve. The adult is usually seen as father, sometimes teacher.

Card 3. Boy, head in hand, with black background (Card No. 8B from *The Michigan Picture Test* by Michigan State Department of Mental Health (Copyright © 1953, Michigan State Department of Mental Health. Reprinted by permission of the publisher, Science Research Associates, Inc., Chicago, Illinois.) This picture was selected as a neutral stimulus with regard to achievement motivation.

Card 4. Scene in a home workshop with an adult female (always seen as mother) watching a school age boy working with a very streamlined model of a car. This was designed to assess the child's perception of mother's need for him to achieve.

Card 5. Two adolescents, one male and one female working in a chemistry laboratory. This was designed to assess the peer contribution to achievement motivation.

Card 6. School boy gazing at a trophy. In some rare instances no achievement themes were elicited in the first five cards. This card was designed to "test the limits" as it has very high achievement motivation saturation.

Standardised, open ended questions were asked for each card in order to elicit responses of the following types.

Unrelated Imagery, Doubtful Achievement Imagery, and Achievement Imagery. (UI, DI and AI)
Need for achievement by the child as perceived in the child himself, or in the mother or father or other for the child. (N)

Need for non-achievement in all of above. (N—)

Expectancy of goal attainment in all of above. (E)

Expectancy of non-goal attainment in all of above. (E—)

Positive affective reaction to achievement in all of above. (A)

Negative affective reaction to achievement in all of above. (A—)

Helping behaviour towards achievement in mother, father or other. (H)

Instrumental activity in reaching an achievement goal. (I)

Non instrumental activity in reaching an achievement goal. (I—)

Barriers to achievement which are overcome in the child, parents, others or physical world. (B)

Barriers to achievement which are not overcome in all of above. (B—)

Goal attainment. (G)

Non-goal attainment. (G—)

Achievement Thema. (Ach. Th.)

APPENDIX B

Sentence completion test

- | | |
|----------------------------------|--------------------------------|
| 1. It is nice to | 21. Without a mother |
| 2. Just now I would like | 22. If I had my wish |
| 3. If only | 23. Sickness |
| 4. Closed in spaces | 24. Just now I feel |
| 5. The best thing | 25. To be closed in |
| 6. What I worry about most | 26. It is worst when |
| 7. My mother | 27. If I were younger |
| 8. When I am sick | 28. A father |
| 9. Sometimes I feel | 29. Leaving home |
| 10. When I get cross | 30. I would like |
| 11. Brothers and sisters | 31. Away from my family |
| 12. If I'm afraid, I like | 32. People |
| 13. I wish | 33. A small warm place |
| 14. If I am by myself | 34. I am most afraid |
| 15. It is worrying | 35. I hate |
| 16. Colds and Flu | 36. When I am alone |
| 17. Caves | 37. I need |
| 18. To stay away from home | 38. If I don't feel well |
| 19. What I want most | 39. The safest place |
| 20. When I am frightened | 40. I love to |

APPENDIX C

Picture completion tests

Both Picture Completion Tests were similar in form but the stimulus stories were modified in Test II to emphasise threat of separation. The following are brief descriptions of the sets with Set 1 as example.

Set 1. Kangaroo. (See Fig. 5.) The double stimulus card was presented and E. said, "Here is a mother kangaroo and her baby joey (Australian word for kangaroo baby) in a field. A man (E. points to second picture) needs a mother kangaroo for his zoo and thinks that this mother would just suit him fine." The five response pictures representing claustral, individual sublimation, clinging, social sublimation and crying (the random order for this set) were then laid out. "Choose one of these pictures which best shows what you think happens. The baby joey can be seen in every picture."

The child chooses one of the pictures and is asked to explain why he made the choice.

Set 2. Mother and school age girl with threat of mother leaving the girl to go on a holiday. Claustral theme was achieved by girl completely curled up on mother's knee.

Set 3. Koalas, with threat of baby being taken from mother. Claustral theme was achieved by having baby in mother's marsupial pouch.

Set 4. Monkeys in a cage with threat of mother being moved to a different cage. Claustral theme with mother's arms and body almost completely enclosing the baby monkey.

Set 5. Mother and child of indeterminate sex on a beach with threat of mother going to swim on her own. Claustral theme achieved by mother kneeling on the sand and almost enclosing the child with her arms, body and towel.

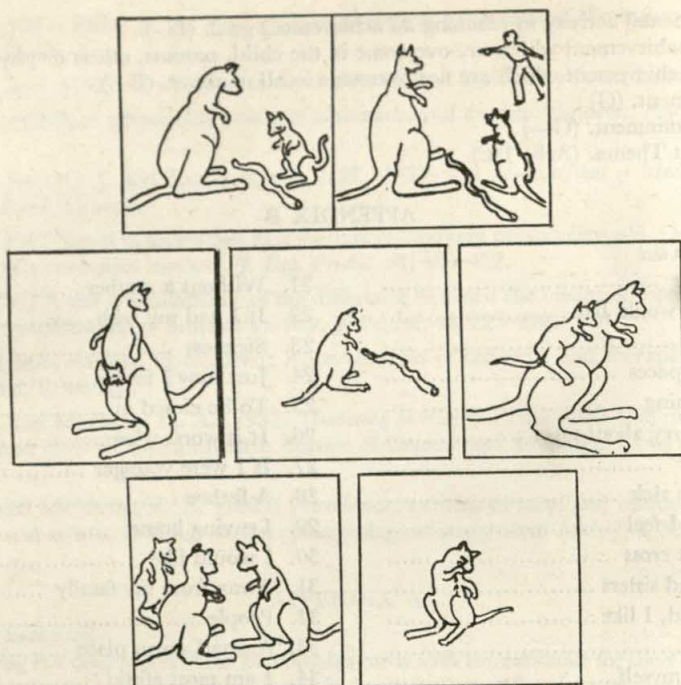


FIG. 5. Example of the material used in Picture Completion Test II. Stimulus double card (top) and possible response cards (2nd and 3rd row l. to r.) representing claustral, individual sublimation, clinging, social sublimation and crying situations.

Set 6. Mother and boy who may have to go alone on holiday to a farm. Claustal theme shown by the boy curled up on mother's knee.

Set 7. A van and a small car with threat of van leaving the car behind because of its speed. Claustal theme achieved by the van carrying the small car inside it in order to stay together.

DIMENSIONS OF TEMPERAMENT IN INFANT SCHOOL CHILDREN

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INTRODUCTION

THE STUDY of the classification of behaviour disorders in childhood using a multi-variate approach has been the focus for much attention over the last twenty-five years (Hewitt and Jenkins, 1946; Peterson, 1961; Collins *et al.*, 1962; Wolff, 1967; Kolvin *et al.*, 1974). Such research has tended to be rather one-sided, the main concentration being on the first of the three components proposed by Cattell (1950), who considers behaviour should be investigated under:

- (i) What children do—behavioural content;
- (ii) How they do it—temperamental style;
- (iii) Why they do it—motivation.

In pre-war years, the work of Burt (1937–1938) and Cattell (1946) demonstrated an interest in the subject of temperament but the major advances occurred post-war with the work, for example, of Thomas *et al.* (1968) in their New York Longitudinal Study. The earlier studies tended to be cross-sectional while the post-war ones were longitudinal, with a particular emphasis on the manner in which temperamental patterns influence the likelihood that a behaviour disorder will develop (Thomas *et al.*, 1968).

AIMS

The present research has two aims: (1) to define dimensions of temperament of infant school children and (2) to suggest an interview procedure to measure these dimensions.

MATERIAL AND METHOD

The subjects of this research derive from the Newcastle Child Development Study (Neligan, 1973). Neligan studied some 13,000 children who constitute the total population of children born in a 3 yr period. We randomly selected 209 infant school children from a one year cohort of the Child Development Study. The sampling yielded an almost equal number of boys and girls (106 : 103). The social class distribution of this sample is very similar to that of the cohort from which it derives that is 9.9 per cent in social classes I and II, 50 per cent in social class III and 30 per cent in social classes IV and V.

*Late of Albert Einstein College of Medicine, New York. Professor Birch tragically was unable to edit this paper.

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The instrument used was a semi-structured, open-ended interview with mothers, designed to elicit information on certain aspects of functioning of the child in his daily activities. The information was then converted to scores on scales with clearly defined criteria. This research instrument is based on the questionnaire approach originally devised by MacFarlane *et al.* (1954) to study behavioural content. It was later modified by Grant (1958) into a five point rating scale, which is consistently one-tailed, ranging from absence of abnormality (1) to extreme abnormality (5). Wolff (1967) modified this method and her measure consists of the employment of standard questions in a set order so as to elicit immediately rateable descriptions of what children do in specific situations. She describes her technique as "focused interviewing".

In a similar way, we developed a series of five point scales of temperamental style indicating the degree to which a particular style was present ranging from absence to extreme. Clear descriptions were provided for every point on some of the scales. However, for others this was difficult to achieve and in these, only the two extreme points and the mid-point on the scale are defined. Standard questions or probes (Appendix A) were developed. These were presented in a set sequence to elicit immediately rateable descriptions of how children do what they do, in specific situations. The probes and scales (see Appendix B) were piloted on some psychiatric clinic cases before applying them in the research. The questions were open-ended to allow, where necessary, further exploration of the mother's description until a satisfactory rating could be achieved. Nevertheless the interviewers were trained to follow, as far as possible, the probe questions so that we could be sure that they had been administered in a standard form in a semi-structured interview. The interview emphasis was on *how* the child behaved (Thomas *et al.*, 1968; Graham *et al.*, 1973) rather than on *what* he did. We concentrated on the day-to-day activities over the previous fortnight if considered representative but if not, the interviewer could choose a two week period in the previous month. Like other workers in this field (Graham *et al.*, 1973) our interviewers' ratings were based on examples of behaviour rather than maternal judgements about child behaviour.

The temperamental inventory developed employs the concepts of Thomas *et al.* (1968) and Graham (personal communication) and consists of 48 items relating to some 17 themes. For the purpose of principal component analysis, only 39 items relating to 15 supposedly distinct concepts were chosen. Two kinds of items were eliminated—those in which there were little scatter, and those questionably relevant to temperamental style.

However, this immediately created some difficulties. We had piloted the questionnaire on clinic children but when applied to normal infant school children there was only poor scatter on most of the mood items. Clearly, at this age, moodiness is rare in normal infant school children but rarity does not mean these items are unimportant, especially if the questionnaire was to be used on both normal and abnormal populations of children. We therefore decided to retain these variables in spite of their poor spread and skewness. This will be commented on again.

Principal component analysis

Some decisions had to be made about how to handle the mood items in any multivariate analysis. In all data there are imperfections and no solution appeared ideal. The operational decision we made was to use each item individually in some analyses and to summate them in others. Therefore, in the first Principal Component Analysis we used all 39 items (Table 1) in spite of the skewness of the mood items. It is of course true that linearity may well be upset by extreme skewness, but when the principal component method is employed, unlike factor analysis, no hypotheses need be made about the variates (Lawley and Maxwell, 1963, p. 2).

The rationale for the summation of certain of the items has been touched on elsewhere (Kolvin *et al.*, 1974). In brief it relies on the fact that component analysis is dependent on the inter-relationship of variables and that these will tend to generate components. It is clear, for example, that the following three variables are likely to be inter-related positively and/or negatively: withdrawal—in relation to (1) adults, (2) children and (3) situations.

In the study of behaviour this difficulty was overcome by combining scores on such clearly related variables and using these combined scores as variables. This model was again followed using the following combined scores:

Withdrawal—in relation to adults, children and situations.

Adaptability—adults, children and situations.

Assertiveness—dominance, spontaneous and provoked aggression.

TABLE 1. TEMPERAMENTAL VARIABLES IN INFANT SCHOOL CHILDREN
PRINCIPAL COMPONENT ANALYSIS*

Themes	Items
Mood	at meals, play, bed-time and dressing
Poor empathy	poor empathy
Sulkiness	sulkiness
Intensity	at meals, play, bed-time and dressing
Activity	at meals, play, bed-time and dressing
Irregularity	time of meals, amount at meals, bowels, falling asleep and waking
Approach/withdrawal	adults, children and situations
Adaptability	adults, children and situations
Assertiveness	dominance, spontaneous and provoked aggression
Submissiveness	general and avoids fighting
Dependency	general and specific
Malleability	at meals and bed-time
Attention span	attention, span, impersistence and distractibility
Social responsiveness	response to prohibition and praise

*Probes and definitions of the abbreviated scores can be obtained from the Research Director (I.K.).

Submissiveness—general submissiveness and avoids fighting.

Dependency—general and on parents' presence.

Malleability—at meals and bedtime.

Attention span—poor attention span and distractibility and impersistence.

Mood—mood in four different situations (play, before sleep, dressing and meals).

Intensity—intensity in four different situations.

Activity—activity in four different situations.

Regularity—in various situations.

RESULTS

Reliability and validity

The questionnaire was administered by two interviewers (L.M.B. and E.G.T.) to the mothers of the children. As in previous accounts of reliability of our behavioural instrument (Kolvin *et al.*, 1974) 43 cases were used in an inter-rater reliability assessment and a further 15 in a test-retest reliability. The inter-rater reliabilities of the 39 items ranged from 0.39 to 0.98, with a median value of 0.82. As a whole, these reliabilities are satisfactory, although they are not as high as was obtained for the behaviour ratings (Kolvin *et al.*, 1974). However, when 4 components of temperament were derived from the 39 items (see below) the inter-rater reliabilities of these 4 dimensions were 0.92, 0.96, 0.98 and 0.94. These 4 reliabilities are higher than the item reliabilities because each relates to a summed score of items; by the Spearman-Brown formula the reliability of a sum is greater than that of its parts (Guilford, 1956). Thus, in spite of the fact that the two interviewers came from different professional disciplines, they achieved satisfactory reliabilities after training in social interviews using the instrument in question. When parents were interviewed one month later (test-retest reliability) about 50 per cent of the 39 items reliabilities were above 0.8 and 80 per cent above 0.6. These test-retest reliabilities, though less impressive than inter-rater reliabilities, are more satisfactory than those described

by Graham *et al.* (1973). We are of the opinion that these better levels were determined by the more structured character of our interview instrument.

In this study at this age range we had very little opportunity for assessing validity although, of course, the items included in the questionnaire have content and (as we shall show later) construct validity. However, the psychologists and the psychiatrists, during interview with the children, rated the children in terms of shyness, negativism and distractibility. Shyness as rated by either the psychiatrist or the psychologist correlated significantly with approach/withdrawal as reported by the parents, but there was little or no correlation between malleability, distractibility, or attention span scores derived from our instrument and negativism and distractibility rated by the psychologist or by the psychiatrist. These low correlations between the psychologist's and the psychiatrist's ratings and the ratings of children's behaviour dependent on reports by the parents are probably explicable in terms of the different interview or observation situations and different definitions of the variables under study. It was our clinical impression that unfamiliar interview situations often exaggerated shyness, but attenuated distractibility and negativism. Further, these reported correlations are not in themselves adequate measures of consistency since they are correlations of global descriptions obtained from mothers with a mere sample of observations in an interview situation. A more systematic assessment of validity will be the task of the next phase of this research.

Principal component analyses

Table 2 shows the first four components which proved sensible clinically. (Only those variables which appear important have been included in the table.) The first three components account for 28 per cent of the variance. However, this is greater than the 20 per cent of the first three components of 40 behavioural variables on the same group of children (Kolvin *et al.*, 1974).

The *first component* extracted was *bipolar* and was labelled "*withdrawal*" versus "*assertiveness*". The "*withdrawal*" pole had loadings on such features as withdrawal from adults and children, takes a long time to adapt to or get used to people or situations, and the child is over-dependent on parents. At the other pole, there are loadings on such features as showing assertiveness or dominance over the other children and responding assertively in the face of provocation.

The *second component* was a general one labelled "*activity, intensity, poor malleability*" and accordingly has high loadings on such features.

The *third component* was a *bipolar* one which proved difficult to interpret. At one pole was a series of features representing *mood* and at the other end was the single feature of *distractibility*.

The *fourth component* was again *bipolar* consisting of *poor malleability/irregularity* vs *poor attention span* and *impersistence*.

The next strategy consisted of reducing the number of variables used as described above. We have also added three variables, namely sulkiness, low empathy and poor social responsiveness. In addition we have included sex and social class as variables. Social class can certainly be regarded as a continuous variable. Sex is a dichotomy, but the inclusion of such data in principal component analysis is common (Moran, 1966). For economy of space we have not included the relevant

TABLE 2. FIRST PRINCIPAL COMPONENT ANALYSIS—WEIGHTS (STANDARDISED)

Named temperamental attributes	CI*	CII**	CIII***	CIV****
Withdrawal—children	0.33	-0.04	-0.04	0.04
Poor adaptability—adults	0.33	-0.05	0.13	0.02
Poor adaptability—children	0.32	-0.07	0.07	-0.01
Poor adaptability—situations	0.30	-0.13	0.02	0.00
Withdrawal—adults	0.29	-0.03	-0.03	-0.04
Withdrawal—situations	0.27	-0.03	-0.14	0.01
Dependency general	0.29	-0.02	-0.03	0.12
Dependency on parents	0.23	0.08	-0.13	0.17
Avoids fighting	0.28	-0.11	0.01	-0.05
Submissiveness	0.21	-0.06	0.04	-0.08
Assertiveness—provoked	-0.19	0.09	-0.04	0.02
Assertiveness—dominance	-0.22	0.02	0.06	0.04
High activity at play	-0.04	0.31	-0.02	-0.19
High activity at dressing	-0.02	0.24	0.21	-0.13
High activity at bed-time	0.03	0.23	0.09	0.13
High activity at meals	0.02	0.28	0.13	0.01
High intensity at bed-time	0.09	0.29	0.05	0.15
High intensity at play	0.09	0.28	-0.09	-0.06
Poor malleability at meals	0.03	0.26	0.09	0.14
Poor malleability at bed-time	0.04	0.26	0.06	0.24
Poor responsiveness to prohibition	0.12	0.24	0.03	-0.11
Spontaneous aggression	-0.11	0.24	-0.06	0.09
Poor attention span	0.09	0.23	-0.05	-0.25
Impersistence	0.05	0.13	-0.04	-0.30
Distractibility	0.01	0.23	-0.17	-0.19
Low empathy	-0.03	0.03	0.22	-0.15
Mood at dressing	-0.01	-0.07	0.53	0.00
Mood at play	0.03	-0.04	0.48	0.05
Mood at meals	0.05	-0.05	0.13	0.09
Mood at bed-time	0.00	-0.06	0.31	-0.04
Sulkiness	0.04	0.11	0.23	0.02
Irregularity—meal amount	-0.06	-0.01	0.06	0.17
Irregularity—mealtimes	0.06	0.15	-0.07	0.33
Irregularity—bed-times	0.03	0.09	-0.03	0.46
Irregularity—waking	-0.06	-0.04	0.02	0.38
Variance	13%	9%	6%	5%
Type of Component	Bipolar	General	Bipolar	Bipolar

Interpretation: *Component I—Withdrawal vs assertiveness. **Component II—Activity intensity, poor malleability, distractibility. ***Component III—Mood vs distractibility.

****Component IV—Irrregularity/poor malleability vs poor attention span/impersistence.

tables. The first three components take up 42 per cent and the first four some 50 per cent of the variance. If compared to the analysis of personality data this is quite considerable; Eysenck (1947) found that his first three components took up 34 per cent of the variance.

The first component was a *bipolar* one of "assertiveness vs withdrawal". The second was a *bipolar* one of "submissiveness vs high activity and poor social responsiveness". The third component was also *bipolar*, and appears to be influenced by sex and consists of "irregularity vs low adaptability, empathy and poor response to social learning". The

fourth component again appeared to be influenced both by sex, social class and it was a *bipolar* one of negative mood versus poor attention span and low social class.

If each pole of a bipolar component is regarded as a separate dimension then a comparison is possible of the findings of the two principal component analyses.

First P.C.F.A.	Second P.C.F.A.
1. Withdrawal	Withdrawal
2. Assertiveness	Assertiveness
3. High activity/intensity	Activity/intensity
4. Negative mood/low empathy	Negative mood
5. Poor attention span/impersistence	—
6. —	Submissiveness
7. —	Poor adaptability
8. Irregularity	Irregularity in females

As can be seen there is a broad overlap of dimensions derived from the two component analyses. What emerges is that the normal infant school children can be described in terms of the following main dimensions: their withdrawal and poor adaptability; their assertiveness; their high activity and intensity; mood; their distractibility and attention span; and irregularity. The above component analyses have, therefore, delineated components and dimensions of behaviour which would appear to make a significant contribution to an understanding of temperamental organization (Thomas *et al.*, 1968).

Analysis of the components derived from behavioural (Kolvin *et al.*, 1974) and the present temperamental data reveals what can be interpreted as a broad correspondence between some of the major dimensions extracted—for instance “neurotic withdrawal” and “acting-out behaviour disorder” in the behaviour analysis; and “withdrawal” and “activity/intensity” in the temperamental analysis. Of course, it is important to know what the correlations are between those dimensions. If indeed they are highly correlated it would lead to some interesting hypotheses about the relationship between temperamental dimensions and a particular form of behaviour disorder. The two most plausible hypotheses which could be advanced and merit consideration are that either the temperamental patterns influence the emergence of a particular behaviour or that temperamental style may just be another way of describing or viewing behavioural phenomena utilizing another jargon or set of terms.

The next point of interest is that temperamental components take up a very high percentage of variance, i.e. with the 39 variables, 28 per cent on the first three components and 42 per cent in the second component analysis. This compares favourably with the component analyses of the behavioural data on the same group of children of 20 and 34 per cent respectively. In the Edinburgh study (Wolff, 1967) using factor analysis, the first three factors account for 31 per cent on 34 variables, and a high percentage of variables were already eliminated because of the small amount of scatter. Indeed, since the component analysis of the temperamental data (especially when using a reduced number of variables) takes up so much of the variance, it seems reasonable to suggest that components deriving from this type of data constitute more fundamental and homogeneous phenomena than components deriving from analysis of behavioural content data.

Finally there are two ways of applying the above findings when providing a

behavioural profile of a particular child. Firstly, one can locate (i.e. classify) the child in a mutually exclusive temperamental category (i.e. being mainly withdrawn or mainly displaying a negative mood). Alternatively, one can locate the child on a series of dimensions deriving from the principal components. This would appear to be a more accurate and meaningful way of describing a child's temperament with potential for more clearly defining individual behavioural differences in infant school children (Thomas *et al.*, 1963).

Measurement of temperament dimensions

Although a series of check lists, questionnaires and inventories have been developed to measure behaviour so far no such instrument has been developed to quantify temperament. This is the main aim of this part of the research.

Elsewhere (Kolvin *et al.*, 1974) we have used principal component analyses to identify the main dimensions of behaviour and we have described the principles underlying the development of a brief behavioural questionnaire for infant school children, based upon the relevant principal component analysis. In this paper we utilize similar principles and methods to develop a parallel temperamental questionnaire.

As already described, we decided to use statistical techniques for selecting items for inclusion on the abbreviated temperament questionnaire. The principles were as follows:

1. We used the four major components of the first principal component analysis.
2. The most important variables in each of the components were selected according to their weight. This is the data which is provided in the subsequent tables. We left out negative weights where these were small and variables which were really the reverse of other variables. The requirement of having positive weights only has meant that occasionally we have had to leave out items with numerically higher loadings. The rationale for this is that many physicians have difficulty in conceptualizing a dimension which has both positive and negative signs and hence we opted for scales with only positive signs. In only one instance have we had to devise a method for dealing with an important negative sign (see below).
3. No variable has been included in more than one component.

This selection of items resulted in there being only one negative weight over the four dimensions. This was assertive/dominance in the first component (Table 3).

Thus, the first component is a bipolar one but can be regarded as unipolar if the assertive negative item is reversed; the first component then becomes one of withdrawal, poor adaptation, dependence and lack of assertiveness. This component can be estimated by adding the scores of the first nine items in Table 2 and subtracting score for assertiveness or, alternatively, by reversing the scoring of this item. The other three dimensions can be estimated by adding the raw scores of the appropriate items together. These items are given in Tables 4-6, together with their unstandardised weights*, reliabilities and standard deviations. Sufficient variables were chosen so that they accounted for 70-75 per cent of the variance of each component.

*Understandardised weight = standardised weight $\times \sqrt{\text{eigen value.}}$

The selection procedure resulted in 30 variables being chosen (i.e. about three-quarters of the total of 39). Thus at least three-quarters of the available information is used.

TABLE 3. FIRST COMPONENT, 10 VARIABLES: WEIGHTS, RELIABILITY COEFFICIENTS, *s.d.* AND MEANS

Variable (Unstandardised)	Weights	Reliability	<i>s.d.</i>	Means
Withdrawal —children	0.75	0.81	0.82	1.76
Poor adaptability —adults	0.75	0.79	0.81	1.35
Poor adaptability —children	0.73	0.95	0.56	1.17
the situation	0.68	0.60	0.71	1.30
Withdrawal —adults	0.65	0.77	0.88	2.84
Dependence —parent-general	0.65	0.68	0.84	1.85
Avoids fighting	0.63	0.94	1.11	1.65
Withdrawal situation	0.61	0.80	0.83	2.33
Dependence —parent-specific	0.53	0.83	0.90	1.98
Lack of assertiveness	0.48	0.57	0.90	4.04

Estimated reliability of sum of 10 variables = 0.96.

Interpretation: Withdrawal, poor adaptation, dependence, lack of assertiveness.

TABLE 4. SECOND COMPONENT, 8 VARIABLES: WEIGHTS, RELIABILITY COEFFICIENTS, *s.d.* AND MEANS

Variable (Unstandardised)	Weights	Reliability	<i>s.d.</i>	Means
High activity at play	0.61	0.81	0.78	1.85
High intensity before sleep	0.56	0.80	0.66	1.47
High intensity at play	0.53	0.71	0.74	1.89
High activity at meals	0.49	0.89	0.65	1.49
High activity at dressing	0.47	0.94	0.44	1.18
High activity before sleep	0.44	0.91	0.60	1.62
Distractibility	0.44	0.82	1.26	3.05
Poor attention span	0.43	0.84	0.84	1.81

Estimated reliability of sum of 8 variables = 0.98.

Interpretation: High activity, distractibility.

TABLE 5. THIRD COMPONENT, 6 VARIABLES: WEIGHTS, RELIABILITY COEFFICIENTS, *s.d.* AND MEANS

Variable (Unstandardised)	Weights	Reliability	<i>s.d.</i>	Means
Mood at dressing	0.82	*	0.19	1.03
Mood at play	0.76	0.37	0.24	1.03
Mood before sleep	0.49	0.71	0.12	1.01
Sulkiness	0.35	0.61	0.38	1.08
Low empathy	0.35	0.87	0.85	1.33
Mood at meals	0.20	0.64	0.22	1.05

Estimated reliability of sum of 6 variables = 0.91.

Interpretation: Moodiness/Sulkiness.

*No data because of lack of scatter.

TABLE 6. FOURTH COMPONENT 6 VARIABLES: WEIGHTS, RELIABILITY COEFFICIENTS, *s.d.* AND MEANS

Variable (Unstandardised)	Weights	Reliability	<i>s.d.</i>	Means
Bed-time irregularities	0.64	0.98	1.24	1.49
Waking irregularities	0.53	0.85	0.81	1.19
Meal-time irregularities	0.46	0.57	1.15	1.43
Call to bed malleability	0.34	0.90	0.85	1.76
Meal-amount irregularities	0.24	0.91	0.82	1.23
Call to meals malleability	0.20	0.86	0.80	2.05

Estimated reliability of sum of 6 variables = 0.94.

Interpretation: Irregularities and poor malleability.

Description of dimensions obtained

The first dimension has already been described. The second was a unipolar dimension compounded of high activity, intensity and distractibility. The third dimension is also unipolar and is essentially concerned with mood. The final dimension again is unipolar and is composed of irregularity and poor malleability. The average correlation of each dimension with its constituent items is as follows:

Withdrawal $r = 0.67$; Irregularity $r = 0.50$; activity, etc. $r = 0.55$; mood $r = 0.41$.

While these correlations are only moderate they are highly significant in relation to the size of the population under study. On the other hand, the intercorrelation of the dimensions with each other are low enough to encourage optimism that they are measures of relatively independent facets of temperament.

	Activity	Irregularity	Mood
Withdrawal	0.07	0.04	-0.02
Activity		0.25	-0.01
Irregularity			+0.01

Means and s.d. of components and their constituent items

Table 7 provides what could be considered tentative sex specific norms for each of these component scores calculated as described above. From this and previous tables a difficulty specific to mood items and dimension becomes apparent. Because of skewness the standard deviations of some mood items and the mood dimension are misleading. The only way of handling such data is to regard mood as a dichotomous variable of low and high mood, scores of 6 and 7 being low and 8-11 being high. This overcomes the problem of calculating a standard deviation on skewed data and allows the data to be correlated in a more valid fashion.

The table also provides scores at the level of one standard deviation above the mean for the other three dimensions. This implies that high levels of withdrawal consist of scores of 26 and above for boys, 27 and above for girls, high levels of activity 18 and above for both boys and girls; and high levels of irregularity 12 and above for boys and 14 and above for girls. We venture to suggest that most research workers and clinicians would find this instrument useful in identifying infant school

TABLE 7. SEX SPECIFIC NORMS FOR TEMPERAMENT—5 YR OLD INFANT

		Boys and Girls		Boys		Girls		Sig
Feature		Mean	s.d.	Mean	s.d.	Mean	s.d.	
Withdrawal	+1 s.d.	25.98		25.16		26.74		NS
	M.	20.33	5.65	19.59	5.57	21.08	5.66	
	-1 s.d.	14.68		14.02		15.42		
Activity	+1 s.d.	17.62		17.88		17.38		NS
	M.	14.32	3.30	14.44	3.44	14.21	3.17	
	-1 s.d.	11.02		11.00		11.04		
Irregularity	+1 s.d.	12.14		11.01		13.12		$p < 0.05$
	M.	9.09	3.05	8.66	2.35	9.53	3.59	
	-1 s.d.	6.04		6.31		5.94		
Mood	M.	6.50	1.02	6.71	1.19	6.28	0.75	
Mood	High %	18.7		29.2		8.4		$p < 0.01$
	Low %	81.3		70.8		91.6		

children with such high levels of temperamental style and that scores at the other extremes of these dimensions would just be regarded as evidence of normal temperamental functioning.

DISCUSSION

Method

It could be argued that the difficulties inherent in using items with poor spread are such that the data from the second component analysis, where summated scores of similar items were used, could constitute a better basis for establishing a temperamental state. However, we have demonstrated that components derived from the second analysis are already in a sense a summary, and we wished to use the original items to generate our dimensions. A re-analysis of our data reveals that in practice it would have made little difference but the advantage is that the method we employed leaves the user a clear picture of the constituent items. Questions could also be raised about the design of the mood items. These have been subsequently adjusted but to no great effect as it appears that moodiness is not characteristic of most infant school children. Nevertheless, it is conspicuous in a small percentage of children and in these it is clinically important. Furthermore we have subsequently examined the mood dimension in slightly older maladjusted children during the course of major studies at this research department. Here we have found a more adequate spread which gives rise to a greater degree of confidence in the use of this dimension with maladjusted children.

Value of instrument

Thomas *et al.* (1968) provide extensive evidence to support their hypothesis that a wide range of personality characteristics (i.e. temperamental characteristics) interacting with the parental environment are predictive of the development of behaviour disorders in young children. However, they report that no single temperamental trait acted alone but rather that combinations of traits or clusters

tended to influence behaviour. Furthermore, different combinations of temperamental patterns appeared to be associated with different types of behaviour disorders. Graham *et al.* (1973) point out that the useful distinction between mental illness and personality (or temperament) in adults is less easy to uphold in childhood. Nevertheless they see it necessary to consider separately the adverse temperamental characteristics "and symptoms of behaviour and emotional disorder, even though, to some degree, the symptoms of psychiatric disorder can reasonably be regarded as extreme deviation of personality traits". Further Graham *et al.* (1973) and Thomas *et al.* (1968) have demonstrated that such adverse temperamental characteristics predict the later development of disturbance in both middle class and working class populations respectively. Patterns of temperamental characteristics are therefore of fundamental importance to psychiatric assessment. A systematic developmental history can provide data upon which judgments about the child's early temperamental characteristics can be formed, especially of those extreme patterns which appear to be associated with the present behaviour disorder. The picture is completed by the collation of current temperamental characteristics which is always more valid and less liable to distortion than retrospective data (Thomas *et al.*, 1968). It also will tell us quite a bit about the temporal stability of the temperamental characteristics in the child under scrutiny.

So far there has been little in the way of easily utilizable research instruments developed for the express purpose of collecting such data. To our knowledge there are no other studies which provide temperamental data on such a large series of randomly selected infant children. Nor have there been many attempts to ascertain whether there are scientifically identifiable clusters of traits which, when converted to dimensions, allow quantification of that cluster. We hope that the current research will make just this type of contribution to our knowledge in this area.

The research also provides tentative temperamental norms for infant school children. These indicate that at this age girls tend to be more withdrawn than boys but not significantly so and are significantly more irregular. However, a significantly higher percentage of boys show high levels of moodiness.

SUMMARY

A Principal Component Analysis of 39 temperamental attributes on a random sample of 209 infant school children produced four meaningful components. These identified components make an important contribution to an understanding of temperamental organization. A brief questionnaire using the above data has been developed for measuring temperament in infant school children. There are 30 questions with appropriate probes which relate to four components (dimensions): (a) Withdrawal, poor adaptation, dependence, etc.; (b) High activity, intensity, distractibility, etc.; (c) Moodiness, sulkiness; (d) Irregularity. Tentative norms are provided for the above dimensions.

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APPENDIX A. PROBES—EXAMPLES

Probe—approach/withdrawal—in relation to adults

How shy is he with other people? With adults that he knows? Does he ever make the first approach to them? Is he ever shy and lost for words? How is he with adults that he meets for the first time? Is he a bit quiet and subdued with them at first? How quickly does he get over his initial shyness? Has he ever been exceptionally shy—eaten up with embarrassment? Has he ever avoided meetings with adults?

Probe—approach/withdrawal—in relation to children

How shy is he with other children that he knows? Does he have difficulty speaking to them? Does he wait for other children to make the first approach? How is he with children that he meets for the first time? Will he join in their play or chatter easily? Is he a bit quiet and subdued with them at first? How quickly does he get over his initial shyness? Has he ever been exceptionally shy with other children? Has he ever avoided meeting them?

Probe—approach/withdrawal—in relation to new situations and experiences

Situation and experiences. How readily does he take to new situations when he meets it for the first time? e.g. visiting a new place or building he hadn't been in before, or trying some new kind of food? Does he try a new thing immediately? Does he ever show some hesitations? Is he ever really worried about a new experience? Does he need much encouragement? Does he ever turn his back on a new situation altogether? (Make sure that parent understands that first encounter *only* is referred to.)

APPENDIX B.—EXAMPLES

Scale—approach/withdrawal—adults

Usually at ease with others. Will answer readily when spoken to	1
Shows some shyness initially with new contacts but this wears off fairly quickly	2
At ease with people he likes but usually show some shyness and reticence with most acquaintances	3
Shy, anxious, uncomfortable with others. Always waits for them to make the first approach (with the exception of close relatives and friends)	4
Exceptionally shy with others. Acute discomfort amounting to panic. Avoids meeting individuals even though he has known them a long time. Includes children who show no verbal communication with adults outside the family circle	5

Scale—approach/withdrawal—children

Usually at ease with other children. Will answer readily when spoken to	1
Shows some shyness initially with new contacts, but this wears off fairly quickly	2
At ease with people he likes but usually shows some shyness and reticence with most acquaintances	3
Shy, anxious, uncomfortable with others. Always waits for them to make first approach	4
Exceptionally shy with others. Acute discomfort amounting to panic. Avoids meeting individuals even though he has known them for a long time. Includes children who show no verbal communication with children outside the family circle	5

Scale—approach/withdrawal—situations and experiences

Always able to approach and try a new experience/situation immediately	1
Usually tries a new experience immediately, but sometimes hesitates initially	2
Always hesitates a little before deciding to try a new experience	3
Usually worried by new situations and requires time and persuasion before he will try it	4
Always worried by a new situation and always refuses to try it	5

THE INTERPRETATION OF CONSERVATION INSTRUCTIONS BY FIVE-YEAR-OLD CHILDREN

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INTRODUCTION

PIAGET's most well-known and controversial experiments must be those on conservation. Typically, the child is presented with two identical quantities which are also perceptually identical and which he judges to be the "same amount". When one of them is perceptually transformed the usual result is that a child below seven years will say that the quantities are now different, usually justifying this in terms of one-dimensional changes. Piaget reports similar findings across the whole range of physical and geometrical properties.

Primarily the controversy arises from the objection that perhaps the child does not comprehend the instructions, having an idiosyncratic and inappropriate interpretation of abstract terms like "same", "more", "amount", etc. Therefore, it is argued, Piaget's technique does not necessarily demonstrate that the thought of the under-sevens is in a state of disequilibrium but may merely be reflecting a semantic incompetence usual at this age. It must be admitted that the experiments, by themselves, do not support Piaget's claim (Piaget, 1954) that verbal competence is a reflection of the level of "operational" or cognitive equilibrium. The present study addresses itself to this problem.

Up till now the question has been tackled in two main ways with little clarification resulting. Firstly, in order that comprehension of terms like "same amount" should not be a barrier to success, the child can be asked, in liquid conservation, to predict what the level of liquid will be when it is poured from a standard vessel into one which is wider or narrower. Accordingly, the general finding is that success at this task comes at an earlier age than when the classic conservation technique is employed (Bruner, 1966; Cohen, 1967; Halford, 1968). However, Piaget has objected (Piaget and Inhelder, 1963) that this does not measure true conservation but only the ability to compensate linear displacements. As the relationship between compensation and conservation is not clear (Larsen and Flavell, 1970) this general approach does not appear to be fruitful.

The other main approach to the problem is to employ techniques of verbal training on non-conservers in order to see whether these bring about correct performance. Beilin (1971) has reviewed past attempts and claims some success for his "verbal rule instruction" method. Similarly, Lumsden and Kling (1968) report that training children from five to seven years in the concept of "bigger" is extremely effective in bringing about size conservation. Yet, on the other hand, Mermelstein

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and Meyer (1969) report failure to induce number conservation by the verbal rule instruction method and Inhelder and Sinclair (1969) discovered no facilitating effect of verbal training on a number of concrete operations.

The approach adopted in the present study is to accept that only the classic conservation technique can assess the ability to conserve and to develop a way of measuring comprehension of the instructions in order to determine whether the child is naturally inclined to interpret them wrongly, *independent of conservation testing*. The important point here is that if the child interprets the instructions correctly this will imply that witnessing the transformation of materials (a perception) is the "disequilibrating" or disorganising experience and if he interprets them incorrectly this can be taken to mean that the child's faulty comprehension is in some way responsible for the failure. If correct interpretation is not general the next step is to ask whether children are failing due to a lack of semantic knowledge or due to a basic cognitive disequilibrium, as Piaget would argue. If the failure is semantic it should be possible to effect improvement on a retest by redrawing the verbal concept. The efficacy of this training can then be evaluated against a non-verbal, manipulative technique. Naturally, Piaget would predict that the verbal training will not be effective in altering the child's usage.

The main novelty of this approach lies in the distinctions made between a verbal and a perceptual failure, and between verbal failures due to semantic or to cognitive incompetence. A small advance on previous studies is represented here in that an attempt is made to evaluate comprehension independently of conservation and that the technique used allows the child's response to be located along a continuum from completely correct to completely incorrect; a slight disadvantage of this method is that it does necessitate some complexity in scoring procedure.

METHOD

Subjects

Subjects were 80 five-year-old children (mean age 66.7 months; range 61–69 months) attending day-schools in the Kentish Town and Clapton areas of London. The socio-economic status of the parents could be described as upper working class. There were equal numbers of boys and girls balanced across experimental groups. In allocating subjects to groups an attempt was made to have the group represent a cross section of the ability in the schools at that age. Teachers' reports were taken to this end.

The task

The purpose of the task was to evaluate comprehension of the phrase "same amount of room". Essentially, the subject was presented with a standard figure along with a set of comparisons or a piece of apparatus of fixed width and variable height. He had either to select the comparison or to produce a comparison by manipulation of the height, with the "same amount of room for . . ." as the standard. The actual dimensions of the materials used allowed responses to be located along a continuum from correct to completely incorrect. Also, the possibility was maximised of allowing interpretations of the instruction to be in terms of "same height" and "same shape" as well as the correct interpretation. Two different training methods could then be employed in an attempt to bring about a higher level of correct interpretation.

Design

Subjects were assigned to one of eight groups in a $2 \times 2 \times 2 \times 2 \times 2$ mixed factorial design (10 subjects per group). There were three between subject variables: two methods of responding to the instruction, either two or three-dimensional materials and the two training methods. The other

two terms in the analysis were the within subject variables of pretest-retest and two different widths of the comparison materials. Each of these is described below.

Responses. The subject was presented with a standard figure filled with either squares or cubes with coloured pictures of animals on their upper faces and informed that this represented a zoo. He was instructed to select from a series of comparisons, or to produce with a piece of apparatus, a figure with the "same amount of room for the animals" as the standard. Half of the subjects were allocated to the selection condition (Sel.), where a set of comparison figures were ranged behind the standard and half to the production condition (Prod.), where the standard was the same as in Sel. but the height of the comparison had to be produced by manipulation.

Dimensions. Half of the subjects were allocated to the two-dimensional (2d) condition and half to the three-dimensional condition. In the 2d Sel. condition the standard was a 6-in. square filled with 1-in. squares and the comparisons were rectangles of varying dimensions. In 3d Sel. the standard was a 6-in. cuboid box filled with 1-in. cubes and the comparisons were boxes of different dimensions. In 2d Prod. the standard was the same as for 2d Sel. but the subject was presented with a piece of apparatus which had a fixed width and variable height. Again the standard for 3d Prod. was the same as for 3d Sel. but the subject had to produce the comparison himself with a piece of apparatus whose base was of fixed size and whose height was variable.

Training. All subjects were trained, whether or not they had been successful on the pretest. When performance had been recorded on one of the four conditions, subjects were given one of two types of training designed to bring about a correct interpretation of the instruction in terms of area (2d) or volume (3d) on the retest. Manipulative (Man.) training was designed to give the subject motor experience of the geometrical properties of the testing materials and direct feedback as to the correctness, or incorrectness, of his choices of productions; this was essentially non-verbal. It involved his transferring the animal squares or cubes into his chosen or produced figure with a little help from the experimenter.

The other type of training represented an attempt to alter the subject's semantic interpretation of the instruction to one involving the recognition of the covariance of dimensions, with the aid of drawings and a simple narrative. This training was called conceptual (Con.) as it sought to directly redraw the subject's verbal concept of area and volume without concrete feedback, or, in the case of those choosing on the correct principle on the pretest, to reinforce it. This training discouraged interpretations of "same amount" as "same shape" or "same height".

Man. training was regarded as a baseline against which the success of Con. training could be measured, as any improvement for which it might be responsible would be due to the effects of negative feedback. Improvement could come after Man. training from the subject's purely pragmatic decision to choose a figure a little smaller or larger next time without necessarily changing his interpretation, whereas improvement after Con. training could only come from a change of interpretation. In this way the efficacy of Con. training, which did not rely on feedback from the testing materials, could be more directly evaluated.

Comparison widths. All subjects were tested with two different constant widths of comparison figures or production apparatus.

Pretest-retest. All subjects were retested on the same condition on which they were originally tested.

Apparatus

Selection. The materials for 2d Sel. were as follows: rectangles drawn on white card with black ink, the standard being filled with 36 1-in. gold squares with coloured transfers of animals on them. In the 3d Sel. condition, the boxes were constructed from thin cardboard and the 216 (6³) in. cubes filling the standard were made of light wood and had similar pictures of animals on their upper faces. In order that the moving of these blocks should not become too tedious for subjects receiving Man. training, groups of four blocks were stuck together in the lower layers so they could be lifted as one.

Production. The apparatus for the Prod. condition is illustrated in Figs. 1 and 2. The movable portions could be slid up and down by the subject; in the case of 2d by using the loop in the top sheet of card and in 3d by gripping the top of the movable cardboard funnel with both hands. This apparatus enabled the subject to produce rectangles or boxes of heights up to 20 in. and as low as $\frac{1}{2}$ in. In the case of 2d Prod. the production was carried out by resting the apparatus on a table top

and in 3d Prod. by resting the base between two table tops so that the subject was unable to see the portion of the funnel which had not been pulled above the base. Produced heights were fixed by temporary adhesive.

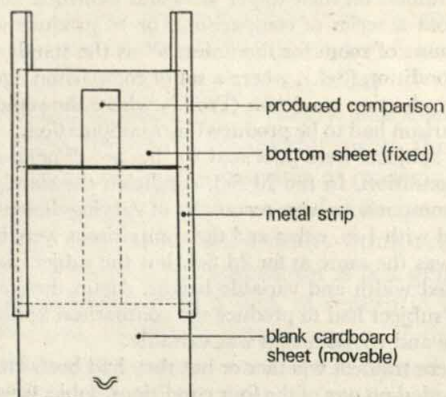


FIG. 1. The testing apparatus for the two-dimensional production condition, showing the 4 in. comparison width.

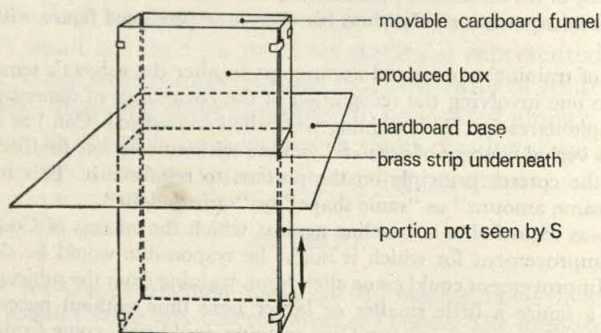


FIG. 2. The testing apparatus for the three-dimensional production condition, showing the 12 in. comparison width.

Dimension of materials. The standard figure in the 2d conditions was a 6-in. square and the width of the comparison was either 12 or 4 in. The correct rectangles in 2d Sel. were therefore 12×3 and 4×9 in. The following considerations guided the choice of the other comparison stimuli. In order to allow for the possibility of subjects choosing in terms of the same height as the standard square, rectangles of 12×6 and 4×6 in. were included. In order to allow for "squareness" responses it would have been desirable to have included 12×12 and 4×4 in. in the relevant sets. However, in order to equate with the heights of the two correct rectangles, the heights chosen were 12×9 and 4×3 in. Finally, in order to equalise steps in the scoring of responses, intermediate rectangles of $12 \times 4\frac{1}{2}$ and $12 \times 7\frac{1}{2}$ in. were included in the 12 in. set and $4 \times 4\frac{1}{2}$ and $4 \times 7\frac{1}{2}$ in. in the 4 in. set. It should be noted that it is this $4 \times 4\frac{1}{2}$ in. rectangle which is nearer a square than the 4×3 in. rectangle, while the 12×9 in. rectangle is much less square. To sum up, the five comparison stimuli were as follows for each width set:

12-in. set	...	12×3 (correct)	$12 \times 4\frac{1}{2}$	12×6 (height)	$12 \times 7\frac{1}{2}$	12×9 (squareness)
4-in. set	...	4×3	$4 \times 4\frac{1}{2}$ (squareness)	4×6 (height)	$4 \times 7\frac{1}{2}$	4×9 (correct)

The standard figure in 3d Sel. was a 6-in. cube, which meant that if a constant depth of 6 in was maintained in the two comparison sets, the heights could be the same as for 2d Sel. To illustrate: just as $6^2 = 36 = (12 \times 3) = (4 \times 9)$, so $6^3 = 216 = (12 \times 3 \times 6) = (4 \times 9 \times 6)$. However, it should be noted that none of the comparisons in the 12 in. set approach a cube; $4 \times 4\frac{1}{2} \times 6$ and $4 \times 6 \times 6$ in. being the closest approximations in the 4 in. set. Therefore, 3d Sel. could not adequately test whether subjects interpreted "same amount" as "same shape".

The Prod. conditions could be directly equated with the Sel. conditions. The 2d Prod. apparatus had a width of either 12 or 4 in. and the 3d Prod. apparatus had a width of either 12 or 4 in. and was 6 in. deep.

Scoring

The scoring system is best understood with reference to Table 1. On all conditions the scores range from 5 for the completely correct response down to 1 for the most incorrect response. On 2d

TABLE 1. RATIONALE FOR SCORING RESPONSES IN ALL CONDITIONS

Comparison stimulus heights on selection	3 in.	4½ in.	6 in.	7½ in.	9 in.
Response categories for production	0 in. → 3¾ in. → 5½ in. → 6¾ in. → 8½ in. → 9¾ in. ———→				
Score with the 12 in. wide comparison	5	4	3	2	1
Score with the 4 in. wide comparison	1	2	3	4	5

Sel., for example, both 12×3 and 4×9 in. score 5, and rectangles of 12×9 and 4×3 in. score 1. In order to locate Prod. responses in the 1-5 range, the heights to which subjects pulled the variable dimension of the apparatus were located within response categories which mapped directly on to the five discrete comparison heights in the Sel. conditions. It can be seen from Table 1 that each of these was $1\frac{1}{2}$ wide; $\frac{3}{4}$ in. on either side of the five heights. Thus, a produced rectangle or box with height $5\frac{1}{4}$ in. would be counted as scoring 3 as it falls within the 6 in. response category. It should be noted that "height" interpretations score 3 points and "shape" interpretations score 1 or 2 points.

These scores can be regarded in two ways: *quantitatively*, as measures of success, to be treated in a $2 \times 2 \times 2 \times 2 \times 2$ analysis of variance in order to measure the relative ease of each condition and the efficacy of training; or *qualitatively* as shorthand for a type of response (e.g. 3 = height) so that the number of subjects making each score can be used as an index of how they were interpreting the instruction.

Procedure

Subjects were tested individually by one experimenter, with the order of comparison set presentation randomised between subjects. Man. training followed immediately in the case of subjects so allocated and involved transferring the "animals" into the chosen "zoos". Con. training took place in the afternoon and involved the experimenter relating a story to the subject illustrated by pencil sketches of "walls" or "fishtanks", depending on whether he was being tested on the 2d or 3d conditions. This training sought to discourage interpretations of "amount" as "shape" or "height". Subjects participated in some of the drawing.*

*Details of the exact procedures are lengthy and for that reason have been omitted. They may be obtained from the author on request.

RESULTS

Firstly, the qualitative distribution of choices in the five categories will be examined in order to study the response strategies subjects were adopting on the pretest. Table 2 sets out the distribution for all conditions.

TABLE 2. DISTRIBUTION OF RESPONSES IN FIVE CATEGORIES FOR ALL CONDITIONS

Condition	Pretest					Retest				
	1	2	3	4	5	1	2	3	4	5
2d Selection										
12 in. width	10	2	2	2	4	2	1	3	6	8
4 in. width	1	11	6	1	1	1	5	6	3	5
	11	13	8	3	5	3	6	9	9	13
3d Selection										
12 in. width	3	1	3	5	8	3	1	3	5	8
4 in. width	2	4	5	6	3	0	0	5	7	8
	5	5	8	11	11	3	1	8	12	16
Total for selection	16	18	16	14	16	6	7	17	21	29
2d production										
12 in. width	2	5	12	1	0	2	5	9	3	1
4 in. width	0	1	10	5	4	0	1	10	5	4
	2	6	22	6	4	2	6	19	8	5
3d Production										
12 in. width	0	2	13	2	3	0	3	9	5	3
4 in. width	1	9	6	4	0	1	3	11	3	2
	1	11	19	6	3	1	6	20	8	5
Total for production	3	17	41	12	7	3	12	39	16	10

2d Sel. Responses counted as being correctly based on equivalent area are defined as those which scored 4 or 5 points. The score of 4 was included because although it is not the correct choice it does represent a correct response strategy: the height of the comparison should be less than the height of the standard if the width of the comparison is more than the width of the standard and should be more than the height of the standard if the width of the comparison is less than the width of the standard.

When the success scores are not included, the distributions of both comparison width sets diverged significantly from expected values on the χ^2 test (for both 4 and 12 in. $p < 0.05$). Table 2 shows this to be due to the fact that in the 4 in. set there are a large number of responses in the 2 category ($4 \times 4\frac{1}{2}$ in. rectangle), and in the 12 in. set a large number of responses in the 1 category (12×9 in. rectangle). These are the figures which most nearly resemble squares in each width condition. The number of subjects choosing the 12×9 in. rectangle (i.e. half of the total distribution) is striking. In order to study further the possibility that subjects may have been trying to choose comparisons of the same shape, the distribution of pairs of responses was examined: that is the responses of one subject on both width sets.

Table 3 sets out the response pairs that were discovered for all 20 subjects. Here the success scores have to be included also because, of course, it is possible to score 4 or 5 points on one width set and not on the other. The distribution was subjected to χ^2 analysis and was found to diverge significantly from expected values ($p < 0.05$). It can be clearly seen from Table 3 that this is due to the clustering around the $4 \times 4\frac{1}{2}/12 \times 9$ in. response pairs: the square approximations. This suggests a definite tendency to interpret the instruction in terms of same shape, even when the approximation to the square is meagre.

TABLE 3. DISTRIBUTION OF RESPONSE PAIRS ON TWO-DIMENSIONAL SELECTION CONDITION

		Response pairs: the 4 in. choice followed by the 12 in.								
Height		$4\frac{1}{2}/9$	$4\frac{1}{2}/7\frac{1}{2}$	$6/4\frac{1}{2}$	$6/3$	$6/9$	$9/3$	$3/6$	$4\frac{1}{2}/3$	$7\frac{1}{2}/3$
No. of choices		8	2	2	2	2	1	1	1	1

3d Sel. Similar analysis of the incorrect scores in 3d Sel. yielded no significant divergences from expected values. However, as 3d Sel. was the condition in which the absence of close approximations to the cube made "same shape" responses least likely, especially in the 12 in. set, it was of interest to determine whether a significant proportion of subjects were able to select on the correct principle because of this. A χ^2 test was performed on the distribution of choices on the correct principle (i.e. scores of 4 and 5) against the remainder. Although the total for 3d Sel. fell just short of significance the proportion of 4 and 5 scores in the 12 in. set was significant ($p < 0.05$); the set in which no comparison box approached a cube shape. Therefore, it appears that when the possibility of interpreting the instruction as "same shape" was not present in Sel. the success rate was high.

2d and 3d Prod. The produced heights ranged from 2 in. to $10\frac{1}{2}$ in. The distribution of all scores on the Prod. conditions was subjected to χ^2 analysis and found to diverge significantly from expected values ($p < 0.01$). Examination of the distribution in Table 2 shows this to be due to the clustering around the midpoint of the scale, namely around 6 in., the height of the standard. Further analysis demonstrated that this distribution does not diverge at the 0.05 level from being distributed in the ratio of 1 : 2 : 10 : 2 : 1, showing clearly that the great majority of subjects were producing a rectangle or box the same height as the standard.

The quantitative analysis of the total responses can now be considered. This evaluates the degree of success at interpreting the instruction in terms of area or volume (see Table 4). An analysis of variance was performed with Sel./Prod. $\times$ 2d/3d $\times$ Man./Con. as the between subjects variables and with pretest-retest and the two comparison widths as the within subjects variables. In this analysis the total range of scores from 1 to 5 could not be used for the following reason. A subject who had scored 4 on the pretest and is then given the Con. training is given no reason for moving up to five, for he had at least responded on the correct principle which the training sought to teach him. However, if he were given Man. training which gave concrete evidence of failure, there would be cause to move up to a score of 5. Therefore, the 5 scores are allocated to three categories. One point was scored for 1 and 2 on the 5 point scale, 2 for the score of 3 on the 5 point scale, and 3 was the score

TABLE 4. MEAN SCORES IN ALL CONDITIONS

Responses	Dimensions	Training	Pretest		Retest	
			12 in.	4 in.	12 in.	4 in.
Selection	Two-dimensional	Conceptual	2.20	2.10	3.90	3.40
		Manipulative	2.70	2.80	3.80	3.10
	Three-dimensional	Conceptual	3.50	3.10	4.10	3.80
		Manipulative	3.90	3.30	3.30	4.40
Production	Two-dimensional	Conceptual	2.70	3.50	3.30	3.60
		Manipulative	2.80	3.40	2.60	3.40
	Three-dimensional	Conceptual	3.10	3.10	3.90	3.60
		Manipulative	3.10	2.70	2.90	3.00

for 4 or 5 on the 5 point scale. This blunts the accuracy of improvement measures, but these improvements are themselves less theoretically significant than between the three new categories.

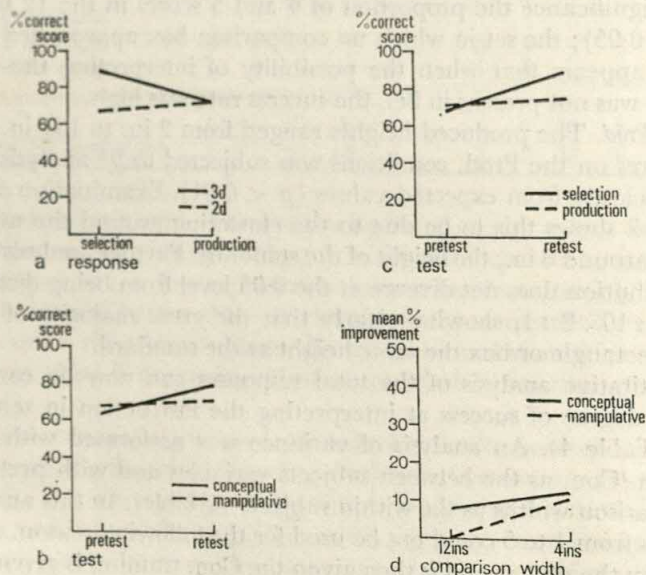


FIG. 3. Graphs of three two-way interactions (a, c and d) and a graph of the effects of conceptual against manipulative training methods (b) in the full analysis of the success scores.

Overall, subjects tested on the 3d conditions were significantly more successful than those tested on the 2d conditions ($F = 10.67$, $d.f. = 1, 72$, $p < 0.01$). However,

the significant interaction between Sel.Prod. and 2d/3d ($F = 9.63$, $d.f. = 1, 72$, $p < 0.01$) shown in graph (a) Fig. 3, demonstrates that this was only the case in the Sel. condition, since in Prod. no difference existed between the dimensions. Referring back to the qualitative analysis, this can be accounted for by the lack of comparisons of the same shape (cube) as the standard in 3d Sel., thereby "freeing" more subjects to select on the correct principle.

Next, no significant difference in difficulty between Sel. and Prod. was found ($F = 3.32$, $d.f. = 1, 72$, $p > 0.05$). However, analysis of the qualitative scores has shown that it is not strictly permissible to extract information from a comparison of the quantitative scores of these conditions as responses in terms of same shape, preponderant in Sel., scored less (1 or 2) than responses in terms of same height, preponderant in Prod. (3).

There was a highly significant overall improvement after training ($F = 19.22$, $d.f. = 1, 72$, $p < 0.01$). Looking at the simple effects of the two training methods, Con. training was found to have been significantly effective ($F = 8.9$, $d.f. = 1, 72$, $p < 0.05$), but Man. training was not significantly effective ($F = 3.20$, $d.f. = 1, 72$, $p > 0.05$), as shown in graph (b) Fig. 3. It was also discovered that the improvement after training was very largely confined to the Sel. conditions, as demonstrated in the significant interaction between Sel./Prod. and pretest/retest ($F = 6.40$, $d.f. = 1, 72$, $p < 0.05$) shown in graph (c) Fig. 3. Con. training did not effect a significant improvement in the Prod. condition ($F = 1.12$, $d.f. = 1, 72$, $p > 0.05$) and scores after Man. training were actually slightly lower in this condition.

One final analysis was undertaken to determine whether, if Con. training had been significantly effective and Man. training had not, Con. training was significantly more effective than Man. As the subjects had been allocated to training groups prior to the pretest, a simple effects analysis of the retest scores could not give unbiased information. As can be seen from graph (b) in Fig. 3, the group which was to receive Con. training had a lower mean score on the pretest than that which was to receive Man. training. Therefore, the analysis of covariance (Winer, 1971) was employed in order to control for pre-training differences in scoring. This analysis failed to show that improvement after Con. training was significantly greater than after Man. training ($F = 3.77$, $d.f. = 1, 77$, $p > 0.05$).

One interaction in this analysis was found to be significant however: that between degree of improvement after the two training methods the two comparison width sets ($F = 8.60$, $d.f. = 1, 77$, $p < 0.01$), illustrated in graph (d) Fig. 3. It can be seen from the graph that there was no improvement after Man. training in the 12 in. set, but there was almost as much improvement as after Con. training in the 4 in. set. There was little difference between degree of improvement on each comparison width after Con. training. This can be explained by the fact that the experience of failing to fill up the chosen "zoo" in Man. training on the 4 in. set and having "animals" left over was seen as a more palpable failure by the children than having room left for more, as they did when manipulatively trained on the 12 in. set.

Summary of results

1. Subjects who had to produce the comparison tended to interpret "same amount" as "same height".

2. Subjects tended to interpret "same amount" as "same shape" when selecting the comparison where comparisons of roughly the same shape were present.
3. Where comparisons of roughly the same shape were not present, as in 3d Sel., there was a high level of correct interpretation.
4. The 3d conditions were easier overall.
5. Con. training was effective in the Sel. conditions but not in the Prod. conditions; and Man. training was successful in no condition. However, improvement after Con. training was not significantly greater than after Man. training.

DISCUSSION

The first conclusion that can be extracted from this experiment is that five-year-old children do habitually misinterpret the conservation expression "same amount of room for . . ." when not being tested for conservation. This implies that witnessing the transformation of materials in the classic conservation procedure is not responsible for the customary failure to conserve at this age. Furthermore, the type of misinterpretation given by the children proved to be dependent on what kind of comparison is required: "height" for production and "shape" for selection of comparison.

One interesting finding which emerged along the way was that when the actual measurement of the materials did not allow the usual misinterpretation, as when selecting three-dimensional comparisons, the success rate was significantly high. This must mean that a competence in correctly interpreting "amount" as "volume" in context, which the conservation testing procedure does not reveal, is present beneath the habitual misinterpretations. An analogous finding is reported by Bryant (1972) that when the opportunity for employing the incorrect "height = amount" strategy is not present in a test of number conservation, children as young as three years can affirm invariance across perceptual transformation. There certainly appears to be a level of basic competence which the logic of the Piagetian conservation procedure necessarily conceals.

As for why selecting and producing comparison resulted in the particular misinterpretations they did, the explanation must lie in the fact that variability of shape is more salient in a row of discrete items than variability of height; with the inverse being the case when directly manipulating the height of the apparatus. Also, a reason should be provided for the fact that the height interpretations (in production) were relatively immune to training whereas overall improvement on the selection condition (abandonment of "shape") was large. To this end the term employed by Piaget (1950) of the "centration of thought" on perceptually striking features of the world can be employed. The act of directly manipulating the height in producing a comparison, because it is action-dependent and immediate, must result in a more complete centration of thought on that particular variable than the more passive perception of a row of discrete items. Moreover, the selection conditions only contained approximations to items the same shape as the standard.

Nevertheless, Con. training did result in significant improvement in the Sel. conditions, which implies that the "amount" = "shape" equation may have resulted from something that could be called a semantic habit rather than a basic cognitive

incompetence. (This could be expressed in Piagetian terminology by saying that in the case of shape, centration of thought can be "reversible"). Piaget's rigid view of language usage in this context as a simple reflection of the child's cognitive level leads him to slight this kind of factor.

This does not alter the fact, however, that Piaget is supported by the clear failure of the Con. training technique in the Prod. conditions. Indeed, it is these "height" interpretations, or more generally "one-dimensional" interpretations, which are more relevant here as they are those commonly given in the justification of non-conservation, e.g. "it's more now because it's taller/fatter". From the results of the present experiment it does look as if non-conservation judgments do not result from a semantic equation which happens to be incorrect.

The picture which now emerges of conservation is that failure to conserve is a verbal failure in the sense that it is rooted in the way that the pre-operational child interprets languages, rather than a failure brought about through witnessing a transformation. But it must be stressed that this verbal failure springs from something more basic than mere, incorrect semantics. Naturally, this does not imply that Piaget's particular explanation is correct; rather that the simplistic version of the language criticism ("it's just that they don't know the meaning of the words") is misleading. The nature of this "something more basic" remains to be seen. It may be a lack of cognitive equilibrium or it could be something less mechanistic in the description of which we may have to include the unpopular term "consciousness".

As for the future, there is an immediate question requiring to be answered: Does the child *really believe* that, for example, a 6 in. square has the same amount of room in it as a 12×9 in. rectangle—does his language reflect his intuitions about the physical world as does that of the adult? One way of answering this is by testing how the child responds in a non-verbal version of the conservation experiment. In this context the evidence which Mounoud and Bower (in press) report of behavioural, sensori-motor competence in weight conservation in infants is of potentially major significance. Moreover, designing conceptual, as opposed to behavioural, tests for non-verbal competence in conservation, where the child has to make a conscious judgment about something without verbal instructions, seems to be one of the more fruitful areas for research into the way in which a child's language reflects his level of cognition.

SUMMARY

This paper presents an attempt to test Piaget's notion that the child's language reflects his cognitive level, by examining how five-year-olds interpret the conservation expression "same amount of room" and then attempting to re-educate their semantics. Interpretations were generally in terms of height or shape, depending on whether children produced or selected the comparison, implying that failure at the classic conservation task is due to misinterpretation of the instruction rather than to witnessing the perceptual transformation. Correct interpretations were common when neither shape nor height variables were perceptually salient. Semantic re-education corrected "shape" but not "height" interpretations, implying that failure to conserve is not a purely semantic failure.

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EFFECTS OF BRIEF SEPARATION FROM PARENT ON YOUNG CHILDREN

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It is now well known that separation of some length from parent produces disruption in the behaviour of young children. The importance of separation has been recognised in psychopathology, primarily through Bowlby's well-publicised work (e.g. Bowlby, 1960, 1961), although for a long time it eluded clinicians. Prolonged separation from mother (or another significant person) gives rise to the so-called separation syndrome (cf. Robertson and Bowlby, 1952). The first phase of this syndrome, which is called *protest*, involves crying and utmost emotional unrest. The second stage, called *despair* or *depression*, is characterised by conspicuous inactivity and social withdrawal. The final phase, following prolonged separation, is called *detachment* or *denial* and is accompanied by initial turning away from mother during reunion.

The separation syndrome in children has mostly been studied in real-life situations. The severity of the effects does not permit an experimental approach. Thus, a number of workers have turned to the possibility of using nonhuman primates instead in order to secure detailed systematic observation (e.g. Jensen and Tolman, 1962; Seay, Hansen and Harlow, 1962; Spencer-Booth and Hinde, 1967; Kaufman and Rosenblum, 1969). Alternatively, it may be considered ethically permissible to subject a child to a very brief separation, lasting a few minutes, in order to examine the effects in experimental conditions. If solitude is the great source of terror for a young child, as William James wrote many years ago (James, 1890), some elements of the separation syndrome might be mimicked when a brief separation has been brought forth. Such studies, which were initiated by Arsenian (1943), have been carried out by different groups of investigators (Cox and Campbell, 1968; Ainsworth and Wittig, 1969; Rheingold, 1969; Maccoby and Feldman, 1972; Marvin, 1972). These studies, however, have been limited to reporting effects in a short period immediately following the separation. As far as I know, Ainsworth (cited as "personal communication" in Bowlby, 1973) has provided the first experimental evidence that separation lasting only a few minutes may have an effect as long as two weeks later. The following experimental procedure was initiated in order to throw some further light on the effects of brief separation in young children. The paper examines the longer-term as well as the immediate effects of a very brief separation experience. Child-parent interaction, children's activity, and the subjects' behaviour in a test 7 days later are compared with those of control children who had had no separation experience.

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SUBJECTS

Ten young children, 12-32 months of age, each accompanied by mother or father, participated in the experiment. There were 9 girls and 1 boy. The subjects fell into 2 treatment groups.

(i) *Controls*. These stayed with parent for 9 min during the first-week observation session ($N = 5$, 4 girls, 2 child-father pairs. Subjects were 13, 14, 19, 20 and 31 months old).

(ii) *Separation subjects*. During the first-week observation session, these children stayed with parent for 3 min, were left for 3 min, and spent the last 3 min in reunion with parent ($N = 5$, all girls, 1 child-father pair. Subjects were 12, 15, 18, 20 and 32 months old).

The subjects came from a day nursery for students' children. Three of the mothers were nursery-school teachers, 7 of the parents were students at the University.

METHODS

For the first-week observation session, child and parent were introduced into Room 1 which was $4 \times 2 \times 2.5$ m in size. The room contained 10 toys and a chair. Two remotely controlled tv cameras were used for video-tape recording. The controls spent 9 min in Room 1 together with their parents. These parents were instructed to behave as naturally as possible with their children throughout the observation session. Each separation subject spent a period which lasted 3 min together with its parent. The parent then left the room, and the child was observed while it was alone for 3 min. Subsequently the parent entered the room and spent the last 3-min period together with the child. The separation subjects' parents were asked to behave in a natural way during the first period. In the third period, following separation, they were instructed to attempt to comfort the child if necessary. Thus, there were 3 periods in the observation session in the first week. These are listed in Table 1.

TABLE 1. PLAN OF THE EXPERIMENT

Episode	Time (min)	Events
Controls: first-week session		
1. Child, parent	3	Parent stays in Room 1
2. Child, parent	3	Parent stays in Room 1
3. Child, parent	3	Parent stays in Room 1
Separation Ss: first-week session		
1. Child, parent	3	Parent stays in Room 1
2. Child alone	3	Parent leaves Room 1
3. Child, parent	3	Parent enters Room 1
Controls and separation Ss: second-week session		
Child, parent	9	Child may alternate between Room 1 and Room 2 Parent stays in Room 1

Room 1 was part of a larger room, $4 \times 4 \times 2.5$ m in size. The larger room was divided by an upright structure of Isopor, 2 m high. For observation during the

subsequent week, an opening, 0.5×2 m in size, was made in the Isopor structure, thus making Room 2 accessible to the child. The parents in both groups were instructed to behave in a natural way but were asked to remain in Room 1 throughout the 9-min observation session (Table 1). For observation in the second week, the same toys which were used the week before were taken from Room 1 and were placed in Room 2. Now 1 tv camera was placed in each room.

The data come from three sources.

1. *Observations of child-parent interaction (I)*

Each child-parent pair was observed for a total of 15 min. The data were obtained during the first and the third 3-min observation periods in week 1 when the parents in both groups were present, and during the 9-min observation session in the subsequent week. Data were scored on checklists, using a 15-sec time grid for the observations which were based on video-tape recordings.

The measures used are as follows.

(i) *Total time holding (Ih)*. The number of 15-sec periods in which the child was recorded placing one or both hands on parent's body for at least 5 consecutive sec. Includes *lean on, hug, embrace*.

(ii) *Total time touching (It)*. The number of 15-sec periods in which the child was recorded placing one or both hands on parent's body for less than 5 consecutive sec. Includes *brief lean on*.

(iii) *More than 60 cm (I > 60 cm)*. The number of 15-sec periods in which the child was recorded out of parent's immediate reach (approx. 60 cm).

(iv) *Child showing object (Is)*. The number of 15-sec periods in which the child approached parent, holding out an object in its hand. Includes *giving object*.

2. *Observations of activity (A)*

Each pair was observed for 18 min. During observation in the first week, activity was recorded while the children spent 9 min in Room 1. During this session, separation subjects were left by their parents for the middle period which lasted 3 min. In the subsequent week, each child was observed for 9 min with the parent present in Room 1, while the subject usually was alternating between Rooms 1 and 2. As before, data were scored on checklists from video-tape recordings.

(i) *Sitting (As)*. The number of 15-sec periods in which the child was recorded as just sitting (or standing) on the floor, apparently not engaged in any activity.

(ii) *Manipulative play (Am)*. The number of 15-sec periods in which the subject manipulated any play object.

(iii) *Touching other things (A $\bar{m}$)*. The number of 15-sec periods in which the child touched other things (e.g. door, door knob, wall, Isopor structure).

(iv) *Suck object (Ao)*. The number of 15-sec periods in which the child placed an object in contact with lips and tongue.

(v) *Vocalisation (Av)*. The number of 15-sec periods in which the subject talked or made any other sound (e.g. *play-noise, laugh, sing*) which could not be classified as crying.

(vi) *Crying (Ac)*. The number of 15-sec periods in which the child was recorded as crying.

3. Test data

The test was an attempt to assess the behavioural characteristics of the subjects in a standard situation in which the child had the opportunity to move away from its parent into an adjoining room (cf. Rheingold and Eckerman, 1970). Due to the previous treatment, such a situation may be mildly disturbing or frustrating for the separation subjects. Test data were obtained during the 9-min observation session in week 2 when the parent was continually present in Room 1. As before, scoring was done from video-tape recordings.

(i) *Latency before entering Room 2.* The number of seconds that elapsed from observation was started in the second week until the child entered Room 2 for the first time, was recorded.

(ii) *Number of times into Room 2.* The total number of times the child entered Room 2 was recorded.

(iii) *Total time in Room 2.* The total number of seconds that the child spent in Room 2, adding the length of each separate visit, was recorded.

(iv) *Venturing into Room 2.* Room 2 was divided into 3 equally sized sections. Section 1 was near the opening and subjects could see their parents if they stayed in this area. Section 3 was farthest away from the opening, but visual contact with the parent was precluded from Section 2 as well. Each child was given a score from 0 to 3. Zero score was obtained if it did not enter Room 2 at all. Scores from 1 to 3 were given according to how far in the child moved on its most venturesome trial.

RESULTS

Effects of separation one week later

Child-parent interaction. The longer-term effects of the brief period of separation from parent in the first week was assessed one week later by comparing controls and separation subjects on the four interaction measures which were used. Behaviour during the 9 min of observation in week 2 was scored by the number of 15-sec periods in which a measure appeared. Thus, each child could obtain a score from 0 to 36. Interaction measures were compared between the two groups, using the Mann-Whitney U Test for independent samples (Table 2).

The frequency of child showing an object to parent was significantly lower for the separation subjects than for the controls. There were no other significant differences.

Activity measures. The longer-term effects were also assessed by means of the activity which was observed during the session in the second week. Activity measures were scored by the number of 15-sec periods in which they occurred during the 9-min session. As before, each child could obtain a score from 0 to 36 on each measure which was used. Again, the two groups were compared, using the Mann-Whitney U Test (Table 2).

The frequency of manipulative play was significantly lower for the separation subjects than for the controls. There were no other significant differences.

The immediate effects of separation

In order to ascertain the immediate effects of 3 min of separation, the behaviour

TABLE 2. COMPARISON BETWEEN CONTROLS AND SEPARATION SUBJECTS ON INTERACTION AND ACTIVITY MEASURES IN THE SECOND WEEK. EACH NUMBER REFERS TO THE FREQUENCY OF A MEASURE FOR ONE SUBJECT DURING 9 MIN
MANN-WHITNEY U TEST, 1-TAILED

Measure	Controls ($N = 5$)	Separation Ss ($N = 5$)	U values
Interaction measures			
<i>Ih</i>	5-5-0-17-1	0-26-1-14-0	11.5
<i>It</i>	2-3-0-8-2	2-7-8-5-0	10
<i>I > 60 cm</i>	24-28-30-14-32	31-2-8-20-35	10
<i>Is</i>	5-4-4-5-4	3-0-1-2-1	0**
Activity measures			
<i>As</i>	0-0-0-0-0	0-0-0-0-0	†
<i>Am</i>	36-33-35-36-33	26-0-9-33-33	2*
<i>Am</i>	0-0-0-0-3	2-8-25-0-3	4.5
<i>Ao</i>	0-5-0-0-1	0-0-1-0-0	9.5
<i>Av</i>	14-29-14-22-31	25-19-28-14-35	11
<i>Ac</i>	0-0-0-1-0	0-1-0-0-0	12.5

* $p < 0.05$. ** $p < 0.01$. † No differences observed.

in the first period in the first week was used as a baseline for comparison. Measures which were obtained in the second and the third periods were compared within the two groups against this baseline. In order to avoid the assumptions that the scores were drawn from a normally distributed population and that both sets of scores were drawn from populations having the same variance, a nonparametric test for related samples would have been preferred. However, due to the number of ties that occurred, the *t*-test for correlated means was chosen. The robustness of this measure may justify the choice considering the alternative of dropping scores of equal pairs from the analysis.

Child-parent interaction. Behaviour in the first and the third 3-min periods in the first week was scored by the number of 15-sec periods in which a measure appeared. Thus, for each of the two 3-min periods, each child could obtain a score from 0 to 12. Interaction measures in these two periods with the parents present were compared (Table 3).

For each pair this involved 6 min observation of child-parent interaction. There were no significant differences.

Activity measures. Activity was scored during the 3 periods in week 1. Each child could be given a score from 0 to 12 in each period on the different measures that were used. A comparison between activity measures in the second period, when the parents of the separation subjects had left the room, and baseline performance is shown in Table 3.

The frequency of vocalisation was significantly lower during separation as compared with the first period. Crying increased significantly during separation. There were no other significant differences.

Activity measures in the third period, when the parents in both groups were present, were compared against activity in the baseline period (Table 3). There were no significant differences.

TABLE 3. COMPARISON BETWEEN INTERACTION AND ACTIVITY MEASURES OBSERVED IN THE FIRST WEEK. EACH NUMBER REFERS TO THE FREQUENCY OF MEASURE FOR ONE SUBJECT DURING 3 MIN t TEST FOR CORRELATED MEANS, 1-TAILED

FREQUENCY OF MEASURE FOR ONE SUBJECT DURING 5 MIN TEST FOR							<i>t</i> values			
Measure	Controls (<i>N</i> = 5)			Separation <i>S</i> _s (<i>N</i> = 5)			1st vs 2nd period		1st vs 3rd period	
	1st period	2nd period	3rd period	1st period	2nd period	3rd period	<i>C</i> _s	<i>SS</i> _s	<i>C</i> _s	<i>SS</i> _s
			Interaction measures							
<i>I</i> <i>h</i>	0-0-0-0-2		0-0-0-0-0	0-12-3-0-0		2-12-7-6-0			1.00	2.06
<i>I</i> <i>t</i>	1-0-0-0-1		0-1-0-0-0	0-1-4-0-1		1-1-5-3-0			0.05	1.21
<i>I</i> > 60 cm	11-12-9-12-0		0-8-12-12-2	10-0-7-12-12		10-0-1-0-11			0.80	1.60
<i>I</i> <i>s</i>	1-0-0-2-1		0-0-0-2-1	1-0-5-0-0		0-0-1-0-0			1.00	1.40
			Activity measures							
<i>A</i> <i>s</i>	0-0-0-0-0	0-0-0-0-0	0-0-0-0-0	0-0-0-0-0	0-0-8-0-1	0-0-1-0-0	***	1.15	***	1.00
<i>A</i> <i>m</i>	11-12-10-12-9	12-12-12-12-12	12-10-1-12-12	11-0-12-4-12	0-1-7-4-8	10-3-7-0-7	2.07	1.78	1.00	1.50
<i>A</i> <i>m</i>	0-0-1-0-0	0-0-0-2-0	0-6-11-0-0	0-0-0-0-0	9-0-0-0-3	0-2-3-0-6	0.40	1.30	1.50	0.70
<i>A</i> <i>o</i>	0-2-0-0-0	0-2-0-0-0	0-0-0-2-0	0-0-0-0-0	0-0-0-0-0	0-0-0-0-0	***	***	0.00	***
<i>A</i> <i>v</i>	9-4-6-3-10	8-5-7-6-10	2-4-4-4-12	7-3-9-9-12	1-0-1-1-1	6-0-10-0-12	1.40	5.45**	0.80	0.70
<i>A</i> <i>c</i>	0-0-0-0-0	0-0-0-0-0	0-0-0-0-0	0-0-0-0-1	11-10-5-11-1	1-11-0-6-0	***	3.42*	***	1.06

* $p < 0.05$, ** $p < 0.01$, *** no differences observed.

Room 2 test

Measures relevant to the Room-2 test were scored independently of the checklist data. The two groups were compared, using the Mann-Whitney U test for independent samples (Table 4).

TABLE 4. DATA FOR CONTROLS AND SEPARATION SUBJECTS ON THE ROOM-2 TEST GIVEN IN THE SECOND WEEK. MANN-WHITNEY U TEST, 1-TAILED

Measure	Controls ($N = 5$)	Separation Ss ($N = 5$)	U values
Latency (sec) before entering Room 2	4-3-5-2-1	48-540-31-11-17	0**
Number of times into Room 2	7-5-5-4-10	5-0-1-2-4	2.5*
Total time (sec) in Room 2	84-278-392-82-195	79-0-8-219-63	3*
Venturing into Room 2 (judged on a scale from 0 to 3)	3-3-3-3-3	2-0-1-3-2	2.5*

* $p < 0.05$, ** $p < 0.01$.

The separation subjects hesitated significantly longer before entering Room 2, and went into Room 2 significantly fewer times, than the controls. Children in the separation group also spent less total time in Room 2. On readiness to venture into Room 2, the separation subjects got significantly lower scores than the controls.

These results are valid provided separation subjects and controls did not behave significantly differently from each other in the first (baseline) period in the first week. From Table 3 it may be seen that one separation subject was recorded as *holding* more than any other child, as never being out of parent's reach, and as not displaying any *manipulative play*. However, when the initial measures of interaction and activity in the first observation session were compared, using the Mann-Whitney U test, no significant differences appeared.

DISCUSSION

In this paper data on child-parent interaction, on children's activity, and on behaviour in a simple test, have been compared between young children who had and had not previously experienced a very brief separation from their parents. Few effects were seen, one week following the separation experience as well as immediately after, on the interaction and activity measures which were used. However, the results indicate that the effects of a very brief separation are still discernible one week later if the subjects are tested for their readiness to separate themselves from their parents.

These results are limited by the fact that the age span of the children that served as subjects was large. However, eight of the ten children were younger than two years of age, and studies reviewed by Bowlby (1973) seem to show that two-year-olds are likely to be almost as upset by brief separation situations as younger subjects. Some of the subjects were accompanied by the mother and some by the father to the observation sessions. This may seem unfortunate, but it was decided beforehand that it would be desirable to use the parent who usually brought the child to the day nursery. The fact that most of the children were girls precludes an answer to the question of possible differences in the behaviour of boys and girls following brief separation.

Unfortunately, one subject in the separation group stayed closer to the parent than any other child and did not manipulate play objects during the first 3-min baseline period in the first week. With small groups, such as in the present experiment, one atypical subject may easily bias the results in one particular direction. However, on a nonparametric test for two independent samples, the groups showed no tendencies to be different from each other to begin with on the interaction and activity measures which were used. Thus, it was concluded that the results could not be attributed to the behaviour of one particularly deviant subject.

During the brief separation there were, as might be expected (cf. Ainsworth and Bell, 1970), a significant increase in crying and a concomitant reduction in other forms of vocalisations. Observations during the period of reunion with parent revealed no significant differences between controls and separation subjects. Seven days later, when the subjects were observed in two adjoining rooms, with parent present in one, the previously separated children tended to show objects less frequently than the controls who had had no separation experience. Also, the frequency of manipulative play tended to be lower for the separation subjects than for the controls. These results may be due to the fact that the separation subjects tended to spend more time in Room 1, which did not contain toys.

The differences found in the behaviour of the previously separated subjects and the controls while they were interacting with parent and performing various activities were not very conspicuous. However, when the subjects had the opportunity to separate themselves from their parents by moving into an adjoining room, differences were marked. Testing was done over a session of 9 min and consisted of placing the previously familiar toys in the new room in order to see how the children behaved. There was a significant tendency for the previously separated subjects to wait longer before moving alone into the adjoining room, to visit the new room fewer times, to spend less total time there and to be less adventurous when in the adjoining room than the controls.

Rheingold and Eckerman (1969) observed that the year-old infant readily separates himself from his mother in order to explore a new environment. If another significant person is present and the child does not expect a separation to be forthcoming, exploration away from parent seems to prevail over proximity-seeking behaviour. But if the situation is insecure, due to previous separation, causal factors for exploration and proximity seeking may be present at the same time. Thus, in the experiment reported here, the test probably constituted a conflict situation for the separation subjects. As long as the subjects could keep in visual contact with parents, interaction measures did not differentiate between the two groups. However, the prospect of not being able to confirm parent's presence visually could cause a separation subject to hesitate when it was enticed to move into the adjoining room. This may explain why the tendency to explore the new environment, being incompatible with proximity- and contact-seeking behaviours, so easily distinguished between separation subjects and controls.

The results obtained here seem to confirm those reported by Spencer-Booth and Hinde (1971), although the time dimensions were very different in the two experiments. Spencer-Booth and Hinde found few differences between rhesus monkeys

which had had one or two 6-day separation experiences when 20–32 weeks old and non-separated controls, when the animals were observed in their home-cages 6–24 months later. However, when the infant monkey was brought with its mother to a strange cage and the infant was observed for its readiness to enter a filter cage by means of a passage large enough for the young animal but not for the mother, they found a significant tendency for the previously separated infants to wait longer before entering the filter cage, to stay there for shorter time and to spend less total time in it than the controls. In certain respects the methods reported here are similar to those used by Spencer-Booth and Hinde. Some of the behaviour measures used in the present experiment were adapted from those used by them.

In conclusion, the effects of a separation experience of only 3-min duration were clearly distinguishable one week later. Even such a brief separation seems to render a situation insecure enough to cause longer-term effects. The effects may not be discernible in the daily activities of young children but may reveal themselves in conflict situations of various types. This leads to the possibility that the separation syndrome not only should be expected after more prolonged separation, but that elements of the syndrome may be an inevitable part of the enterprise of living for young children.

SUMMARY

Data on child–parent interaction, activity and behaviour in a test situation were obtained from young children who had had a single 3-min separation and from non-separated controls. During separation, crying increased and non-crying vocalisation decreased. No other immediate effects of separation were observed. One week later, the previously separated subjects tended to show objects less frequently and also manifested less manipulative play. There were marked differences in their readiness to separate themselves from their parents.

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ANNOTATIONS

THE ASSESSMENT OF PARENTAL BEHAVIOUR

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INTRODUCTION

BOTH CLINICIANS and researchers are concerned with how best to study patterns of parent-child interaction. If valid findings are to be obtained it is necessary that the methods pick up aspects of the interaction which persist over time and which are representative of what happens in natural family life. The methods should also reflect the *sequence* of interacting behaviour if causal inferences are to be drawn. Four recent reviews (Lytton, 1971; Waxler and Mishler, 1970; Hetherington and Martin, 1972; Hirsch and Leff, in press) have considered some of the advantages and limitations of different approaches.

(i) *Interviews with parents*

Until recently interviews with one or both parents have been the method most used to study parental behaviour. This technique has the great asset that it can cover a wide range of behaviours including those that occur infrequently. In addition a relatively extended time period can be scanned. If well-trained interviewers use systematic methods reliable and consistent measures of the frequency of certain parental behaviours can be obtained (Rutter and Brown, 1966; Brown and Rutter, 1966). Difficulties in recalling events and emotional bias in reporting can probably be reduced by encouraging informants to give blow by blow descriptions of recent events (Hoffmann, 1957). It is necessary to inquire into each area of parent-child interaction where data is required if a satisfactory range of behaviour is to be obtained (Antonovsky, 1959).

There are three main limitations to the interview with the parents on their own. Firstly, reports of happenings more than 6 months previously tend to be both invalid and biased (Rutter and Brown, 1966; Yarrow *et al.*, 1970). Secondly, behavioural sequences and contingencies are not reliably reported even if the interview occurs very soon after the events (Douglas *et al.*, 1968). Thirdly, qualitative aspects of parent-child interactions, such as associated non-verbal behaviour, cannot be obtained.

(ii) *Conjoint family interviews*

An interview with the whole family is designed to meet the last two objections to the parental interview. It provides the opportunity for immediate observation of live interactions as they occur so allowing accurate appraisal of detailed sequences in

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context, together with the associated feelings and emotions. It is claimed that the presence of young children will, by their spontaneity, provoke "natural" sequences of parent-child behaviour. However, the development of standardised techniques and measures for family interviews is in its infancy (Watzlawick, 1966; Wells, 1973) and it remains uncertain how far the observed interactions are distorted by the clinic setting and the observing interviewer. In one study only parents who expressed high levels of criticism of their partner when seen individually showed criticism when seen together (Rutter and Brown, 1966). If this threshold effect applies to the conjoint family interviews then families with mildly disturbed relationships may conceal some of their problems in that situation. Because of its complexity the family interview is less efficient as a means of gathering a wide range of historical data, however, the presence of several informants can help to confirm or refute accounts of parental actions thus providing greater validity.

(iii) *Observation of structured interactions*

Appropriate structuring of parent-child behaviour in the clinic or laboratory enables particular types of interaction to be studied in depth. The technique allows detailed observation of both qualitative and sequential aspects of behaviour. Most methods involve giving parent and child a series of set tasks in defined situations. For example, to look at maternal teaching styles, mothers have instructed their children in sorting and copying exercises (Hess and Shipman, 1967). Patterns of family decision-making have been examined by first obtaining the individual opinions of family members and then asking the family group to reach a joint opinion, either with or without knowledge of the previous individual opinions (Hetherington and Martin, 1972). An approach which has been designed to throw light on causal influences in families with a schizophrenic child is to construct artificial families using previously unacquainted people: parents of schizophrenic and normal children and schizophrenics and normal children (Waxler, 1974).

Observations of structured interactions is time-consuming and expensive. Much training of personnel is required, with repeated checks if a satisfactory level of observer reliability is to be maintained (Taplin and Reid, 1973). It is difficult to use the method to study infrequently occurring types of interaction. Furthermore parents behave differently with their children in different settings (Hatfield *et al.*, 1967). Standard tasks which are supposed to provide comparability between families may have different meaning to different people so that behaviour on the tasks in laboratory or clinic will have an unknown relationship to behaviour on other tasks and in the natural setting. One technique has been modified to provide more personally meaningful material for the families being studied (Goldstein *et al.*, 1968).

Despite limitations these methods are valuable for looking in detail at processes in interactions and so providing hypotheses for testing in more naturalistic settings where control of variables and data is more difficult. Laboratory assessments can also be used as indices of change though their validity for the purpose needs to be established.

(iv) *Unstructured observations in the home*

This technique has the advantage of looking at parental behaviour first hand in

a natural setting. Selection of appropriate categories permits the study of context, sequence, detail and qualitative aspects of parent-child interaction. However, the observer cannot see everything nor stay indefinitely. This puts limitations on the range of behaviour which can be recorded and the settings in which it can be sampled. In common with other observation techniques, if it is used alone the historical context of the interactions is lacking. "Observer presence" effects must be taken into account. It is possible these attenuate after several visits but studies using mothers as surreptitious observers of their own families suggests that the presence of an observer may be associated with greater unpredictability in the behaviour of family members (Patterson, 1972).

Careful selection and definition of the categories used for both observation and analysis is necessary, since these can bias results (Lytton, 1971). Ethologists who have made significant contributions to this field (Jones, 1972) argue for the use of behavioural categories which are as purely descriptive as possible. A recent review of time, state and event sampling severely criticises all or none scoring of behaviour during short time samples because it obscures the true nature of sequences (Altmann, 1974).

Direct observations in the natural setting produces voluminous data. Unfortunately the special benefits of the technique in providing detailed sequences is often lost because the difficulties of analysis lead to data being ignored and condensed. Computer programmes have been developed to help with this problem (e.g. Humphreys, 1971).

(v) *Parental diary and the parent as observer*

Parents may be asked to keep an account of events and behaviours as they occur. The choice of what is recorded can be varied according to need: e.g. detailed sequences in rare happenings or simple counts of frequent behaviour. As for interview data the parent is the observer but in contrast recording is intended to be nearly immediate. The advantages of immediate recording of "natural events" is balanced by the involved nature of the observer who, apart from bias, is limited in what she can be expected to write down.

Herbert and Baez (1972) found only very moderate agreement between mothers and independent observers in counts of mothers' "attention to appropriate behaviour" although the mothers' behaviour changed in the desired direction.

Although Lytton (1973) had not been impressed with the use of a parental diary in his study which is using multiple measures of parent-child interaction, it has proved very helpful in a home-based behaviour modification programme for autistic children (Berger *et al.*, 1974). It may be that with appropriate training of parents and structuring of the diary this can be one viable approach to the assessment of parental behaviour.

(vi) *Questionnaires*

Questionnaires are cheap and easy to administer and score. They can cover frequencies of a wide range of behaviour. Their main use is as a screening instrument. Some individuals (e.g. battering parents) may give more valid responses to a questionnaire than in a face to face interview.

However, they are unsatisfactory for studying behaviours in depth: for obtaining fine detail, sequences and context. Difficulty also arises from conscious and unconscious distortion in parents' answers. These biases can result from parents attributing different meanings to the same words, and from parents' current attitudes to problem behaviour or their desire to be socially acceptable. Most parents are not trained to disentangle attitudes and behaviour, and questionnaires provide few means for helping them to do so (Becker and Krug, 1965).

COMMENT

It is no longer satisfactory, whether in clinical work or research, to employ only one method to assess parental behaviour (Lytton, 1973). What is needed is detailed knowledge of the advantages and disadvantages of each technique and the best way of using it.

Direct observation methods give the best hope for teasing out detailed sequences in parent-child interactions. The problem of whether behaviour recorded at a particular place and point in time is representative of that occurring naturally over a given period can only be resolved by comparing results using different techniques in the same and different contexts. It is vital that adequate criteria are devised so measures can be replicated.

There is no good method for obtaining information on parental behaviour distant in time. However, if a satisfactory technique is used the parental interview is fairly good for background circumstances and events, for range of recent behaviours and, to a lesser extent, frequency.

The potential of the parental diary requires more exploration. Family interviews are likely to become increasingly useful as appropriate techniques and measures become more solidly established. It should be remembered that whatever the method some parents and their assessors will introduce more distortions than others. It would help if these individuals could be identified.

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GENETICS OF HYPERACTIVITY

DENNIS P. CANTWELL*

THE HYPERACTIVE Child Syndrome (HACS) is a relatively common behavior disorder of childhood which begins early in life, is more common in boys and is manifested by a symptom pattern of hyperactivity, impulsivity, distractibility and excitability (Cantwell, in press). The recognition that brain damage is not the major etiologic factor in most cases of hyperactivity has stimulated research into other possible etiological factors. This communication reviews the evidence for the role of genetic factors in the syndrome.

Two psychiatric studies of the biologic parents of hyperactive children have been reported. Morrison and Stewart (1971) systematically evaluated the parents of 59 hyperactive and 41 normal control children and Cantwell (1972) similarly evaluated the parents of 50 hyperactive children and 50 matched normal control children. When the data from both studies are combined, 17 (16 per cent) of the fathers and 5 (5 per cent) of the mothers of the hyperactive children were thought to have been hyperactive as children. Only two fathers of the normal control children were thought to have been hyperactive as children and only one of the mothers gave such a history.

High prevalence rates for the HACS in the second-degree relatives of the hyperactive children were also reported. Cantwell found that 15 per cent of the uncles, 12 per cent of all male relatives combined and 6.3 per cent of all relatives combined had been hyperactive as children. Comparable figures from the Morrison and Stewart study were 11.7 per cent for uncles, 12.8 per cent for all male relatives, and 7.5 per cent for all relatives combined.

These data suggest that the HACS is a familial disorder which passes from generation to generation, but do not explain whether the possible mechanism of transmission of the syndrome is a genetic or environmental one. To test the hypothesis that the HACS is genetically transmitted from generation to generation, both investigators also conducted a systematic psychiatric examination of the non-biologic parents of adopted hyperactive children (Morrison and Stewart, 1973a; Cantwell, 1975).

In both of these studies the HACS was found to a much greater degree in the biologic first and second degree relatives of hyperactive children, than in the relatives of the adopted children. The prevalence rates for the syndrome found in the adopting relatives were not significantly greater than that found for the relatives in the control group, and were less than the generally accepted prevalence rates for the syndrome found in the general population. These data are consistent with the hypothesis that there is a genetic transmission of the HACS from generation to generation, as are Safer's (1973) findings that ten of the 19 full siblings of hyperactive children were considered to be hyperactive as opposed to only two of 22 half siblings.

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Comparing identical with fraternal twin pairs, where at least one member of each pair manifests the condition under investigation, has been a traditional method for evaluating whether genetic factors play an important role in that condition. Unfortunately, twin studies of the HACS have been limited. Lopez (1965) found a 100 per cent concordance rate for the HACS in four monozygotic (MZ) twin pairs, while only one of six dizygotic (DZ) twin pairs was concordant for the syndrome. However, sex differences between the MZ and DZ twin pairs cloud the interpretation of the data (Omenn, 1973).

A larger study of 93 sets of same-sexed twins has been reported by Willerman (1973), who used a parent rating scale as a measure of hyperactivity. The heritability estimate was 0.82 for the males, 0.58 for the females, and 0.77 for males and females combined suggesting a substantial genetic component to activity level. Willerman then arbitrarily defined children with scores on the parent rating in the top 20 per cent as "hyperactive". There were 8 MZ and 16 DZ twin pairs with activity scores in this range. The heritability estimate for this group was 0.71. These results are also consistent with the notion that genetic factors play an important role in the HACS.

Possible genetic mechanisms of transmission of hyperactivity to be considered include: a chromosome anomaly, simple autosomal dominant and simple autosomal recessive transmission, sex-linkage and polygenic inheritance. The only reported chromosome study of hyperactive children failed to find any evidence of sex chromosome aneuploidy or other chromosome abnormality (Warren *et al.*, 1971). If the mechanism was a simple autosomal dominant gene: one of the parents of a hyperactive child should also have been hyperactive, there should be no significant sex differences in the prevalence of hyperactivity, and there should be no skipping of generations. None of these three conditions appear to be met in the HACS (Cantwell, *in press*).

With a simple autosomal recessive gene model: each of the parents would carry the gene, but neither would be affected, and 25 per cent of full siblings of the proband children should manifest the disorder. Although clinical experience (Wender, 1971; Omenn, 1973) indicates that the syndrome does occur in siblings, more systematic data is needed on larger populations to determine if the prevalence rate in full siblings approaches the 25 per cent predicted by a recessive model. However, the high percentage of parents manifesting the syndrome (Morrison and Stewart, 1971; Cantwell, 1972) would seem to rule out this model also.

The excess of males with the disorder might suggest a sex-linked gene. However, this model also appears unlikely due to the high degree of apparent transmission from father to son (Morrison and Stewart, 1971; Cantwell, 1972).

The last possible model to be considered is that of polygenic inheritance. This model states that more than one gene is involved in the transmission of a disorder and a proband manifests the disorder only when the correct number or combination of genes are present. This model is very difficult to prove or disprove due to its complexity. Morrison (Morrison, 1974; Morrison and Stewart, 1973b) has offered preliminary evidence in favor of a polygenic model in two separate studies.

The first study tested the following two consequences of the polygenic model; (1) "The greater the number of individuals in a family who manifest a disorder, the

greater the risk factor in the family". Since alcoholism has been found to be linked with the HACS, then families with multiple cases of the syndrome should have higher prevalence rates for alcoholism than families with only one index case of the syndrome and (2) "Families with both an index case and a first degree relative manifesting the syndrome may be presumed to have a greater concentration of the necessary genes". Thus, they should also be more likely to have extended family members affected. Both such consequences were found to be true in Morrison's first study.

In his second study, Morrison used Slater's method (Slater, 1966) of analysis of ancestral cases in an attempt to distinguish a possible polygenic model from a dominant gene transmission with reduced penetrance. Slater's method states that in the instance of a single dominant gene, one would expect secondary cases to occur exclusively, or nearly so, on one side of the family. In the cases of polygenic transmission, one would expect a significant number of probands to have both paternal and maternal ascendant relatives affected. Morrison's data on families in which two or more relatives had the HACS were congruent with a polygenic model using Slater's method.

This communication has attempted to review the available evidence for genetic factors in the HACS. The family studies reviewed strongly suggest that the syndrome is a familial disorder and the failure to find increased prevalence rates for hyperactivity in the adopting parents and second degree relatives argues against a purely environmental mechanism of transmission of the syndrome. However, both adoption studies suffer from the fact that no information was available about the *biologic* parents of the *adopted* hyperactive children. Comparison of the biologic parents of the *one* group of hyperactive children with the adopting parents of *another* group of hyperactive children was a necessary compromise. A study of the biologic and adopting parent of the *same* group of hyperactive children is needed for more conclusive evidence.

A properly conducted twin study on a clinically diagnosed population of hyperactive children has not yet been done. However, even a "perfect" twin study would not be conclusive. There is evidence that MZ and DZ twins may not have equivalent environmental experiences and that MZ twins are more vulnerable to pre- and post-natal abnormalities (Partanen *et al.*, 1966; Mittler, 1971). The basic assumption that any difference between MZ twins is due solely to environmental factors, while differences between DZ twins are due to both genetic and environmental factors is thus open to criticism.

Phenotypic diagnosis is as much a problem in genetic studies of the HACS as it is in genetic studies of all psychiatric disorders. In the absence of specific laboratory tests for psychiatric disorders, the phenotypic diagnosis is made on the basis of a clinical picture. There is ample evidence of lack of agreement in psychiatric diagnosis and differences in diagnostic criteria among clinicians which have been shown to lead to marked differences in heritability estimates in adult schizophrenia (Shields and Gottesman, 1972). Moreover, even perfect agreement in diagnosis of a particular condition among investigators does not assure that all probands presenting with the same clinical picture do in fact have the same condition. This is particularly likely with the HACS. Studies of response to stimulant drugs, follow-up studies, neurologic and neurophysiologic studies all indicate that hyperactive children are a hetero-

geneous group (Cantwell, in press). It is likely then that if there is a genetic component to the syndrome, it is operating in one sub-group of these children; or there may be several genetically distinct sub-groups. Future genetic investigations should concentrate on various sub-groups of hyperactive children—for example “drug responsive” vs “non-drug responsive” children—in an attempt to obtain a more homogeneous proband group.

Finally, it must be noted that the crucial genetic studies of the HACS have not yet been done. Although the various types of studies reviewed here may *suggest* a genetic component, they cannot *prove* it. Genetic mechanism precisely defined is the only way to prove a genetic component. Segregation and linkage studies are the only analyses that can precisely define a genetic mechanism. Segregation studies are difficult to do in humans. Newer, mathematical models will hopefully allow detailed pedigree analysis over multiple generations (Spence, 1973). Linkage studies will require the discovery of a “genetic marker” associated with the HACS.

At present, the evidence for genetic factors in the HACS can only be regarded as tentative. However, the available data suggests further investigations in the genetic area should prove fruitful.

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CRITICAL NOTICE

Patterns of Residential Care. R. D. KING, N. V. RAYNES and J. TIZARD. Routledge & Kegan Paul, London, 1971. pp. 255. £3.50.

THIS important book breaks new ground in research into the care of children in institutions. It is a painstaking attempt to measure the quality of care offered in three different kinds of establishment hospitals, hostels and voluntary homes for mentally handicapped children. It is to be commended to all who are interested in research method *per se*, as well as those concerned with residential care, whether of adults or children.

Methodologically, it is one of the most sophisticated quantitative studies I have read. The authors do not apologise for their concentration on "hard data" which can be measured. "We believe that . . . quantitative techniques provide a more precise and systematic means of comparison than a straightforward description" (p. 4). They claim that they do not divorce measurement from description. True, but the descriptive aspects of the book lack colour. The institutions do not "come alive". But the impact of their work is nonetheless powerful because of the elegance of the research design and the sheer importance of the questions asked and measurements taken, which are all concerned with the amount and type of interaction between staff and children. (This is in striking contrast to many such studies, in which sophisticated measures cannot conceal the triviality of the questions.) The authors move, by steady, explicit steps and by the use of elaborate, precise techniques to a "child management scale", in which two types of care are distinguished; "child orientated" and "institution orientated" practices. The findings are unequivocal. The children in hospital received care which was much more "institution orientated" than those in local authority hostels, with the voluntary homes falling somewhere in between. It is important to note that these findings are a function neither of size of the institution nor of staff shortage. ". . . A high staff-child ratio may be a necessary but not a sufficient condition for child-orientated management" (p. 149). Further analysis showed that the type of training which the unit heads had received was closely associated with the differences. (Very few of the junior staff were trained.) Their findings therefore suggest that, important as they may be, the influences of the "institution" on behaviour were not paramount. Rather, those (for example) who had had a nursing training would carry into local authority hostels methods of child care which might be described as "institution orientated", whereas those who had qualified in residential child care were more "child orientated", wherever they worked.

The importance of these findings and the implications for further research are considerable. First, confirmation by research of the vital part "unit heads" have in setting the tone of establishments, though by no means a novel thought, is nonetheless very useful for training priorities in times of scarce resource. Secondly, the suggestion that training influences are so powerful is somewhat unexpected. Sociological theory has tended to stress the effect on individual behaviour of the values and norms of the organisation itself. These findings shift the emphasis, which again is important for training policy in, *inter alia*, field and residential social work.

The authors emphasise that their study does not attempt to demonstrate whether "child orientated practices" actually produce "better" children. That is to say, there is no serious attempt to relate their findings to measures of independence, health, development etc. (One small study of a group of mongol children is inconclusive. It is perhaps a pity it was included at all since it raises a different set of research problems which are not pursued). The authors are refreshingly candid (for once feelings break through), in arguing that they are prepared to defend "child orientated practices", without measures of effectiveness, simply on moral and social grounds.

"In as much as . . . children are treated in a manner which is impersonal and institutional, not only do they suffer but the community also loses something of its respect for human dignity and human happiness" (p. 199). This "affirmation of faith" is all the more effective for being set in the context of a study which rates objectivity and dispassionate investigation highly.

Whilst I share the authors' conviction, it is nonetheless important that someone, building perhaps on their work, should evaluate the effectiveness of child-orientated practices. It may be unnecessary to justify them by evidence from research. But it is necessary to find ways of testing their efficacy so that we may see what *else* may need to be done to provide children in residential care with life chances equal to those in families. It is my impression that despite the efforts of local authorities (upon which the authors comment favourably) to improve the quality of care in their homes in most aspects of daily living described in the study, we are still left with many children who are seriously emotionally disabled, witnessed by their inability to move easily into "the outside world". Readers unfamiliar with these problems might take from the book an unduly rosy picture of childrens' home life. Even if it can be shown to be more "child-orientated" than many hospitals, sadly we have still often to ask—"what went wrong?" Hence the need for evaluation of effectiveness.

The approach is sociological; the authors do not permit themselves to stray far into the realms of theory. But what discussion there is raises fascinating issues, crucial to our understanding of the dynamics of institutions. They point out, for example, that although Goffman wrote of a conflict between humane standards and institutional efficiency:

"... Some practices, while they certainly denied the individuality of the inmates, were neither particularly convenient for staff, nor necessarily efficient..." (p. 105). We need to know much more about the factors associated with institutional rigidity if we are to bring about real change. Similarly, one needs to ponder on their intriguing observation:

"The total institution is a social hybrid, part residential community, part formal organisation; therein lies its special sociological interest" (p. 46). Space does not permit the discussion of detail, in method and findings, which this elaborate study deserves. It is appropriate that it should be focussed upon children with severe mental handicap, until recently shamefully neglected. But, as the authors point out, there were in 1963 more than 130,000 children in this country in various forms of institutional care. A recent document on training for residential social work* suggests that there are about 96,000 staff in residential institutions, *excluding hospitals and prisons*. It would not be fanciful, therefore, to suggest that we may have a million children and adults in institutional care; which is expensive and scarce. Money spent on research into its effects is therefore desirable on economic grounds alone. But ultimately its justification is a moral one, given the vulnerability and dependence of those who live in institutions. We owe the authors a debt of gratitude for a quiet scholarly work, motivated, one suspects, by compassion.

OLIVE STEVENSON

*Central Council for Education & Training in Social Work, 1974 Paper 3. *Residential Work is Part of Social Work*.

BOOK REVIEWS

Comparative Ecology and Behaviour of Primates. Edited by RICHARD P. MICHAEL and JOHN H. CROOK. Academic Press, London and New York, 1973, pp. xvi + 847. £12.00.

THE TITLE and length of this volume may suggest a systematic reference work, giving convenient access to information on sexual and social behaviour from mouse lemurs to man, with ecological factors distinguished from taxonomic affinities. What one finds instead is a wide-ranging collection of papers containing a mass of mainly observational data, delivered in 1971 at a joint conference for the Study of Animal Behaviour and representative of current trends in this area. The preface by the editors gives a brief preview of the contributions and provides some useful pointers as to the underlying themes, but for the most part the reader has to provide his own theoretical integration, checking his course by means of beacon-like hints in a sea of description.

For the psychologist the main interest in the collection probably lies in suggesting which behaviours in existing primate species are likely to be phylogenetically old.

In Section I on Ecology and Behaviour the Prosimians are represented in a small but thorough field study by Martin on the lesser mouse lemur of Madagascar, a species whose similarity to the bush-baby is thought to be due to the retention of primitive features. The females live in relatively large and stable nest groups and have synchronous cycles of oestrus, fertilisation and rearing. "Central" males have access to the females during the breeding season, when they may be found in the female group nests, but otherwise they nest alone or in very small male groups. "Peripheral" males are mature but younger than central males and do not have such ready access to the females.

An observational study of Cercopithecines in captivity by Chalmers makes use of what is in essence a 2×2 design: two habitats (arboreal and ground living) $\times$ two taxonomic groups (cercopithecine monkeys and baboons and mangabeys). In theory this allows one to apply the following principle for detecting evolutionary "old" features: "Behavioural features which are common to a taxonomic group regardless of habitat, must have evolved early in the evolutionary history of the group, before it diverged along different evolutionary pathways." Although the composition of the groups and the habitats are not representative of natural conditions, the study does suggest that there is more aggression in terrestrial than in arboreal forms, that this is largely due to the males and that these are more differentiated from the females than in arboreal forms. The data also confirm the suggestion that sexual behaviour and other close-up intraspecific behaviours tend to correlate with taxonomy and to be relatively independent of ecology, whereas the reverse holds for home range size and the pattern of infant development.

Chivers presents detailed field data from Malaya on the siamang, white-handed gibbon and two species of banded leaf monkeys. The emphasis in this paper is ecological in a strict sense, with distributional data on the flora, feeding, calling, insolation and rainfall, etc. There is little description of behaviour beyond the recording of its incidence.

Gautier-Hion gives an account of a field study of the Talapoin monkey of the inundated rain forest of N.E. Gaboon. This small, omnivorous Cercopithecine is an excellent swimmer and shows various other atypical features which are interpreted as adaptations to its habitat.

Rodman's field study of orang-utans suggests that male adults go through a nomadic stage during which they make random contact with females, before settling down in permanent ranges that overlap female ranges but not those of other males. Females are dispersed by "conservative radiation" from their mother's home ranges. Apart from mother-daughter relations, which persist late into adult life, social interaction appears to be minimal and the male contributes gametes to the next generation but no more, retiring into isolation between rare mating bouts.

The second section of Sexual Behaviour and Social Dynamics begins with a paper by Ploog and Maurus discussing the signal function of genital display in the squirrel monkey, and the methodological advantages of manipulating this response and social calls in a social context by means of radio-stimulation of the brain. The sophistication of the technique is more promising than some of the conclusions that emerge: e.g. (p. 224) "We can conclude that actions which terminate a sequence and actions which do not are functionally different."

The paper by Michael *et al.* on the sexual behaviour of male primates and the role of testosterone is a valuable systematic account of what we know about the main primate families in this respect. In addition to data on copulation, it includes useful information of social-sexual group structures, a section on the development of sexual behaviour in male primates and experimental data on the effect of castration and hormone replacement in male Rhesus monkeys.

Deag's paper on intergroup encounters in the wild barbary macaque includes interesting data on tree shaking, chasing, inter-group "monitoring", feeding, etc. but meticulous spatio-temporal description swamps a limited theoretical content and is not really assisted by group boundary diagrams which look like superimposed front line positions for an entire campaign. Similarly, the significance of the photographs would escape one but for the large arrows directing the eye to the right spots.

The next three papers are in many respects the most interesting in the collection. Sugiyama's review of field studies of the social structure in wild chimpanzees provides relief in its readability, and suggests that group structure is extremely flexible, depending on such factors as population density.

In Simpson's social grooming of male chimpanzees we meet the Gombe Stream characters familiar from Jane Goodall's book "In the Shadow of Man"; for instance, the dominant male Mike, the one-time dominant Goliath, Leakey and others. Only this time they are part of a very thorough and intensive quantitative analysis. Extremely specific questions are formulated and tested using a variety of simple and complex measures of grooming interactions and social status in terms of aggression. For example, ranking in terms of both grooming behaviour and status was found to be transitive for different pairs of animals and status also determined grooming preference in triads. This paper repays careful analysis, though the reader is warned that the argument often resembles a superior adult verbal reasoning test.

The intriguing photograph on the dust jacket shows a mother gorilla watching with interest as her infant urinates in a wide arc after she touched its genitals. One of the points emerging from J. P. Hest's well illustrated paper on the sexual behaviour of the Basle Zoo gorillas is this interest on the part of the mother in its infant's genitals, expressed in various ways ranging from manipulation with either hands or mouth and smelling, to play copulation. It seems that the genitals may be used by the mother as a means of both positive and negative reinforcement. An interest in the genital area and sexual behaviour was manifest in all the gorillas and copulating adults appeared remarkably tolerant when other animals tried to touch or otherwise interfered. Sexual behaviour in these gorillas show great diversity; there is a wide range of related play activities and imitation, with animals often taking the part of the opposite sex. The complex relation between the female Kati and the dominant male Stefi included provocative posturing, staring, open invitation and helpful positioning by Kati and dorso-ventral or ventro-ventral love-making was sometimes preceded by one-way or mutual orogenital contact. The reviewer's dilemma is whether to credit gorillas with more imagination or humans with deeper-rooted impulses.

Contributions in the third section on Primates and Human Ethology are rather disappointing. A brief introduction by Ploog emphasises the embedding of new behavioural elements in existing structures, and nonverbal communication.

"A description of some human greetings" by Kendon and Ferber applies common sense categories to film and video records of wedding, birthday and Thanksgiving parties. While accepting that such work is preliminary, the description is exhaustive yet leads to relatively little induction, comparison or valid quantification. One point of interest was gaze-aversion during the final approach phase, which was interpreted as reducing anxiety; had the volume included discussions or an integrative comparison of the different papers, this behaviour might have been compared with similar behaviour in, e.g. the Basle gorilla Stefi.

A brief and fragmented paper by the Waterhouses on Primate Ethology and human social behaviour comments on data on group behaviour in nursery school children and in Rhesus, and makes some more generalised comparative references.

Blurton-Jones and Konner examine sex-differences in the behaviour of London and Bushman two 6-yr-old children. They make some interesting observations, but one may question the validity of some of the generalisations in view of uncontrolled variables. Inter-scorer reliabilities were not given, the summary on p. 756 omits the direction of any sex or cultural differences on most of the

variables mentioned, the discussion uses the data as a launching pad and half the behaviour category definitions in the appendix are simply references to previous papers.

In P. K. Smith's paper factor analysis is used to detect temporal clusters in time-sampling data from preschool children. The reviews of time-sampling and temporal clustering work are of interest, but the statistical sophistication of the processing is far more impressive than its products, which include principle components such as social maturity and whether or not play material was used.

The final contribution by Brindley *et al.* on sex differences in nursery school children confirms the fact that boys are more aggressive than girls, who are more cooperative than boys; boys direct their aggression primarily at other boys and girls are particularly cooperative with younger girls. The discussion, for the unconverted, makes a good case for the biological determinants of sex differences in behaviour.

I. O. M. Moun

Services for Children and their Families—Aspects of Child Care for Social Workers.

Edited by JOHN STROUD. Pergamon Press, Oxford, 1973, pp. 4 + 246. £4 hard back. £2.45 flexi-cover.

The purpose of this book is set out in the introduction as "an attempt to record the position achieved by the child care service on the eve of reorganisation". It further states that one of its purposes is to help the new entrant into the social services to comprehend what has gone on before and at the same time invite him to challenge and rethink the position in which he will find himself. The Editor hopes that the contributors to this book may have provided material which will stimulate, interest, and perhaps guide social workers.

I have several reservations about the book. I am afraid I did not find it stimulating, but rather had to force myself to read it to the end. Perhaps I have been unfair in hoping for more. Certainly the position reached by the child care services is stated, but there is no attempt to take the imagination beyond this point. There is no suggestion that there are other fields to conquer, nor any indication that services could be greatly improved. It therefore fails in its second aim of offering a challenge.

I also think that the title of the book is misleading. The whole field of services for children and their families is by no means covered, as voluntary societies and their contribution are practically ignored. The book should be called "Local Authority Services for Children and Their Families". It is particularly distressing to someone working in the voluntary field to find that the only contribution from a voluntary organisation is concerned with residential nurseries. The chapter starts very properly with the question "Why residential nurseries?" but it proceeds to justify them and it certainly gives the impression that voluntary child care organisations as a whole are continuing to run residential nurseries and this is not true. The author gives no indication that there are any thoughts that care of young children in this way is questionable. In fact there is a statement that "care in a residential nursery is possibly the most satisfactory alternative to his home and nurseries should not therefore be written off as "second-class care" for the deprived child in his early years". And later the caring of these children in age groups is described as "the best arrangement, for it reduces cross infection". I found this chapter most depressing.

How does the book set about its task? There is a section on the history of services for children, which deals with climate of opinion, attitudes and responses through the years 1870-1970. The section on supporting services to keep families together describes itself as "this chapter through the social services". In a section on homelessness there is the statement "the main bulwark against poverty is not the government's social security system", I am sorry that the main bulwark against poverty is not described as work. However, this chapter is really quite comprehensive.

In personal services to the family, casework is dealt with at some length, the use of group work and community work is also touched on. There is no mention of the somewhat newer method of the use of conjoint family therapy.

There is a full and useful chapter on fostering and in particular some important things are said about the role of the social worker in this situation. For example that it should not be assumed that the triangle of child/foster parent/parent does not exist simply because the natural parent is not physically present. It is also spelled out that the social worker in visiting a foster home has among the many facets of her responsibilities that of being an inspector. I think many social workers would happily ignore this part of their responsibilities. It is a very positive function and not a negative one,

The success or failure of a fostering situation can very often be laid at the door of the social worker with her skill and sensitivity, or lack of it. It is this element and the fact that many social workers in local authorities today have got such a heavy and varied work load, that they cannot give sufficient time and attention to this fractionally small part of their duties.

Residential care

I found this section on residential care and the following one headed "Residential Establishments" the most disappointing in the book. It seemed to me evident that the writers were still looking upon residential care as a very negative and undesirable form of care, instead of a positive one during which, for a short period of time, a particular form of care and treatment is provided which is essential to the growth and maturity of the child. The fact that many residential establishments still care for children who are thoroughly institutionalised and have been left there for many years, is not the fault of the residential workers, but is the fault of the social workers who spend so much time criticising them. It is not within the power of these residential workers to find alternative means of caring for these children, but it is within the power of the social workers in the field. I found the comment by John Stroud on p. 109 that "it is still expected of residential social workers that they will try to teach the ten commandments" more enlightening of the author than helpful as far as residential care is concerned. The question is asked "is it possible then to justify the continuing existence of children's homes?" and John Stroud goes on to say "that it is as hard to justify them as it is to justify the existence of hospitals or of nursing homes, as these represent a failure of the family, or of the community, or of the professional services, to contain and treat a problem *in situ*". Does John Stroud really expect a difficult surgical operation to be conducted within his own home? He does go on to say that "now the home is regarded much more in terms of rehabilitative treatment". In fact this chapter started on p. 97 and it goes to p. 115 before any really positive statement is made about this form of care and as there are only about four more pages it could not have been left much later. He finally states "and in the end do not all the people involved in a residential service reflect and become affected by the attitudes of society as a whole . . . the last refuge, a place to be used only when everything else has failed. . . ." John Stroud quite clearly sees it this way, as do many other social workers and I think that it is society that reflects their attitude, rather than the other way round.

Continuing with the subject of residential care, I thought that the section on Family Group Homes was very facile. No basic problems were discussed at all and nothing was given about the reasons why these small homes were tried in the first place, nor why there has since been a move away from them.

Has this book succeeded? I would describe this book as workmanlike but dull. There are no pointers to the future, no suggestion of further steps to be taken, or goals to be achieved, except for three or four paragraphs at the end of the section on services for mentally handicapped children.

MARY G. JOYNSON

The Challenge: Despair and Hope in the Conquest of Inner Space. R. EKSTEIN. Brunner/Mazel, New York and Butterworths, London, 1971, pp. vii + 354. \$7.95.

FOR MORE than two decades Ekstein and his colleagues at the Reiss Davis Child Study Center, Los Angeles, have been engaged in a clinical research programme with psychotic and near-psychotic children. In this volume they report and discuss some of their findings. The book is in five sections, dealing with diagnosis, treatment, discussion of an extended clinical case history, problems of work with parents of psychotic children and supporting agencies and research issues arising out of the clinical work.

According to the shared viewpoint of the authors, the psychotic child suffers principally from a failure to discriminate between the actual objects of sensory perception and the representations, cognitive and affective, with which he invests them as a result of the influence exerted by his inner states of feeling. Unlike the normal child, the psychotic's percepts are held to be virtually regulated by fragmented and impulse-driven sentiments deriving from what Freud termed "the primary process" of instinctual, wish-fulfilling activity. Elsewhere in the book, a parallel thesis is expressed, this time in psychogenetic terms. The psychotic is deemed not to have progressed beyond (or else to have regressed to) a psychological state of symbiosis with the image of the mother. The result of

this is that the child has no concept of "self-identity", does not experience himself as differentiated from the mother or from objects in the phenomenal world. His speech productions are regarded as being not so much pure "nonsense" but distorted reflections or commentaries upon this internal state of affairs. In view of this, the clinical task of the therapist consists in participating in the child's delusional percepts; by the act of sharing them, neutralising some of their power and dread for the patient; and finally leading the patient to a more organised and "reality-based" apprehension and response to the world about him.

The authors' formulation of their treatment programme is based heavily upon Freud's theories, particularly as these have been developed through the work of Anna Freud and Mahler. Few concessions are made to the reader unfamiliar with psychoanalytic terms, especially in their transatlantic variants. Where Ekstein claims to have broken fresh ground is in utilising what he calls "intrapsychic interpretation" as distinct from conventional psychoanalytic interpretation. By this he means the therapeutic use of the paralogical thought processes of the child in communicating back to the child the therapist's understanding of what is going on. Whether this technique is new in child analysis is debatable. Hug Hellmuth was doing something similar fifty years ago and Winnicott's practice in his therapeutic consultations (admittedly with quite different cases and a different object in view) likewise stressed the importance of keeping therapeutic communication with the patient a sort of subliminal, not overly-interpreted exchange. It is a feature of the rather self-absorbed, inbred character of the work described in this book that little account is taken of the theories and findings of other workers in the field, whether or not they share the authors' basic psychoanalytic approach.

From several points of view this is a most unsatisfactory book. Its partiality will infuriate those who question the theoretical relevance and the practical usefulness of analytic child psychotherapy in the treatment of childhood psychosis; it should also dismay those who are prepared to set some value on such treatment methods by its evident lack of objective, critical assessment of the results of the treatment undertaken. Throughout, case illustration, interpretation, commentary and theoretical hypothesis are intermingled in a most confusing manner, leaving the reader who is unprepared to have his judgement overwhelmed by sheer force of repetition, hard put to discover what independent evidence or what words or actions of a particular patient could conceivably cause the authors significantly to question their basic theoretical premises. If such an observation seems unduly severe, it is at least partly prompted by the dictates of one of the authors' own propositions: if the psychotic child does inhabit his own circumscribed sensory and affective world, the therapist must be especially sensitive not to exploit the patient's vulnerability by imposing in its stead an equally circumscribed "cognitive map" of his own. The style of much of the writing of this book, the haphazard way in which chapters have been put together from a series of separately published articles, the carelessness over references and misprints, as well as the rather proselytizing manner of exposition, give cause for misgivings about the degree of scientific detachment and self-criticism which should accompany such an enterprise. Whatever the clinical value of the work, this book affords a poor advertisement of it.

A. C. REEVES

Behaviour Therapy with Delinquents. Edited by JEROME S. STUMPHAUSER. Charles C. Thomas, Springfield, Illinois, 1973, pp. xiii + 358. No price.

This is at the same time a useful and a disappointing volume. Useful, because it collects together contributions from many leading exponents of behaviour therapy with delinquents. Some of the chapters were specially written for the book, while others were originally conference papers or published in somewhat unlikely or obscure places. This means that the book is valuable for those without much time to delve in libraries and who want to get a quick idea of the current state of the field. From this standpoint, psychiatrists, social workers, and teachers dealing with delinquents should profit from the volume, as much as psychologists.

The book has four parts each with an introductory chapter by the editor. The first attempts to lay out fundamental principles of learning theory and their application in therapy as well as to air some ethical and professional dilemmas arising from the use of behaviour therapy with delinquents. The second describes some "basic" experimental research on such matters as the appropriateness for delinquents of various kinds of reinforcements, while the third and fourth are concerned respectively

with attempts to treat delinquents in institutions and in the community. With some exceptions (for instance the "testimonial" to behaviour therapy given by a circuit court judge) the contributions are well balanced, though not enough editorial effort has been put into avoiding overlap and repetition between the various chapters. Nor has enough effort gone into making the style of some of the contributions, particularly those written as conference papers, suitable for publication in the present form. There are also a great many printing errors.

These are small faults, however, and do not account for the sense of disappointment one feels on closing the book. The main source of this is the meagreness of the achievements: here and there some small successes are reported in bribing a refractory girl to keep reasonable hours and acceptable companions or in persuading institutionalized boys to work hard at classroom tasks and to avoid fighting at the pool table. (Indeed it is in the *management* of delinquents in institutions that behavior therapy holds out the greatest promise.) But there is no large scale follow-up reported of delinquents treated in the community to see if improvements in behaviour were lasting or of those treated in institutions to see if they were also better behaved on release.

Perhaps it is too soon to expect this kind of evidence, but there is little sign that any of the contributors (with one or two exceptions such as the Achievement Place team) are likely to make much progress on this score. This is the second source of disappointment and derives from the failure of the book—for which the editor must take the main responsibility—to deal adequately with a number of crucial issues. These include questions of, (a) how far delinquency is a generalized disposition to break social rules and how far a collection of discrete and specific deviant habits, (b) the related question of how much generalization to other problem areas can be expected as a result of dealing with specific deviant behaviours, (c) to what extent delinquency, which for the most part can take place only when the individual is at liberty, is susceptible to behaviour therapy in an institutional setting, and (d) to what extent situational contingencies rather than prior learning govern delinquent conduct. Some of these questions are approached, but finally they are avoided. Moreover, the tendency throughout the book to treat delinquents as though they were unthinking bundles of responses, together with what seems to be an almost total ignorance of various sociological perspectives on delinquency combine to produce not only disappointment but ultimately a deep, and perhaps premature, feeling of disbelief.

R. V. G. CLARKE

Clinical Studies in Childhood Psychoses. Edited by S. A. SZUREK and I. N. BERLIN. Brunner/Mazel, New York and Butterworth, London, 1973, pp. xix + 780. \$20.00.

This large book presents the results of 25 years' of work on childhood psychosis at the Langley Porter Institute, San Francisco. Most of the 33 chapters appear to have been written specifically for the book, but some have been previously published or presented. Eleven of the chapters are the work of one or both of the editors, and in seven more one or other of them collaborates. After an historical section, there are sections on "current clinical issues", "clinical research", sexual problems and therapy.

In the 25 years reviewed in the book 277 psychotic children were seen and details are given of 264 of these. The children, their histories, backgrounds, EEGs, other characteristics and especially their treatment, are fully described. There is also a report of a follow-up study. No-one who reads the book can fail to learn a great deal about psychotic children.

The research section begins with an 86p. chapter by Dr. Szurek on "attachment and psychotic detachment". This looks at Bowlby's research on attachment, with the aim of discovering how it may help understand what goes wrong with the mother-child relationship in children who become psychotic. The aim is by no means fully realized in a rather muddled chapter.

The one chapter dealing with depressive reactions is disappointing. It never gets to grips with the question of the nature of depression in children, nor its treatment. Indeed it skates round the subject describing first "historical aspects" (going back to Homer's *Iliad*), depression in adults and "the suicidal preoccupations of Tom Sawyer" and then gives a somewhat anecdotal description of depressed children.

Unfortunately much of the book is written in a discursive, imprecise style which is none too easy to read. Sentences like, "This writer has long held general biological interest with respect to com-

parative interorganismic behavior in infrahuman phyla and its possible implications for human interactions especially in infancy and early childhood" (p. 191), scarcely facilitate communication. But it does mean that when, on p. 343, the reader finds that, "The *core* group represents the typical 'atypical' child", he is not surprised. One exception to this criticism is the beautifully lucid piece, "What I did with Don", by the psychologist Lightner Witmer. This paper is one of three chapters in the historical section. Reprinted from *Ladies Home Journal* of April 1919, it is not only a model of writing but also a fascinating account of the treatment of a psychotic child.

Another piece of compelling reading is the final chapter, "Lessons from failure in ten years of psychotherapeutic work with a schizophrenic boy and his parents". Dr. Berlin is to be admired for giving such a frank account of so unsuccessful a case. Terry, the boy treated, had 1100 sessions of individual psychotherapy over a period of eight years as an inpatient, then 85 more sessions during two years of outpatient treatment. Yet he ended up mute, destructive and heavily sedated in a state hospital back ward. Running through this fascinating chapter and through the book as a whole, is the assumption that the psychotic process is essentially psychogenic and that it could be successfully treated by psychotherapy—if only the psychotherapy were skilful enough. The basis of this assumption is unclear and it might have been that Terry had a profound defect of inner language in addition to the obvious, gross and intriguing family psychopathology. Dr. Berlin, on the other hand, wonders whether "a possible critical factor" (responsible for the failure of treatment) was that the parents were not seen together as often as the child was seen!

It is this bias which is the book's limitation. Nevertheless anyone interested in psychotherapy with psychotic children will find in it much that is relevant and of value. It will no doubt find a place in the libraries of centres seeing and treating psychotic children. At the same time it is disappointing that so much work over so many years has yielded so little in the way of solid results, and it is difficult to avoid wondering if this is due in part to a blinkered approach.

PHILIP BARKER

Organisation and Memory. A Review and a Project in Subnormality. P. HERRIOT, JOSEPHINE M. GREEN and R. McCONKEY. Methuen, London, 1973, pp. x + 118. £1.25.

THIS is a difficult book to read, not so much because of what it contains, but because so much is left out. The main charge against it is that as a short book it is overambitious. The first section attempts a selective survey of recent research into organisation and memory in normal subjects. Readers who have had little previous involvement with the memory literature may well find this section helpful but the coverage is uneven. Psychologists researching into memory processes, one group for which this book is intended, will need to turn elsewhere for comprehensive reviews.

The second section of the book is concerned with organisation and memory in subnormals. A brief chapter entitled "Previous Research" deals with methodological problems in research into subnormality as well as reviewing previous studies on memory processes. What follows is a description of a series of experiments which the authors have carried out on memory processes in subnormals. The overall aim (as stated on p. 52) "is to discover whether the same processes can be inferred to account for the free recall performance of subnormals as are hypothesised to account for that of normals". Unfortunately the experiments are never described systematically and the reader must search hard to put together the results. There is a master table (on the wrong pages) that provides an overview of procedural differences between the experiments. A willingness to turn to the journals for further details will not always help, as not all of the work is published elsewhere. A final note of irritation is the lack of a comprehensive bibliography. Instead there is a handful of references at the end of each short chapter and consequently much repetition. On the positive side, a book of this sort is valuable in bringing together the findings of a comprehensive project and providing the basis for further research. The conclusions of this project are tentative, but they are almost certain to generate further experiments.

D. JONES

Behaviour Disorders of Childhood and Adolescence. RICHARD L. JENKINS. Thomas, Illinois, U.S.A., 1973, pp. vii + 140. \$6.95.

THIS book is mainly a study of classification. The large number of cases concerned were drawn from the Institute for Juvenile Research, the Michigan Child Guidance Institute and other sources. The

samples were analysed in order to isolate clusters of traits, associated with types of behavioural disorder.

Five main types of maladjustment are described and illustrated by case histories. This typology covers The Overanxious Reaction, the Unsocialized Aggressive Reaction, The Socialized Delinquent, The Withdrawing Reaction and the Hyperkinetic Reaction. Socialized delinquency was found to sub-divide into two groups, one associated with gang misbehaviour and the other with the tendency to run away from home.

A classification exercise of this kind has its value in an area where there has always been a tendency to bandy about umbrella diagnoses like 'socially maladjusted' or 'schizoid personality type'. It also has its weaknesses, because labels are always somewhat of a menace unless accompanied by specific treatments of proved worth for the named dysfunctions. Failing that, labelling may replace careful analysis of each individual case. The author is aware of this but nevertheless fails to give specific guidance as to treatment, except in the case of the hyperkinetic reaction. Elsewhere the suggested treatment is rather sketchy.

The book, however, is not lacking in interesting material. For example, in one research reported, a hundred mothers of male schizophrenics were found to agree more often with 15 statements, in a list of 139, than a hundred mothers of non-schizophrenic males, with the difference at the 0.001 level of significance. The list turns out to be a hideous formula for creating a psychologically inhibiting home climate. For example, items include: A mother should make it her business to know everything her children are thinking. Playing too much with a child will spoil him. Children who take part in sex play become sex criminals when they grow up. Indeed, by identifying a group of behaviour patterns, the book strongly indicates the need to get into the family situation before a maladaptive reaction crystallizes into a maladapted life-style.

The book shows a certain confusion of orientation because its stated theoretical position is the now threadbare Freudian assumption that society is primarily to be understood as denying individual impulses expression, whereas developmental psychology—which is where this book belongs—sees the social relationship as playing a much more positive role. The author writes: "Having recognized that inner conflict is invariably a part of social living, we may consider elements that increase or diminish it." In fact, of course, *good social relationships are the primary source of inner harmony.*

JAMES HEMMING

Understanding Children. RICHARD A. GARDNER. John Wright & Sons Ltd., Bristol, 1974. pp. x + 249. Price £4.50.

IN THIS book Dr. Gardner sets out to provide the general public with a non-technical account of the issues involved in child rearing and development. The titles of some of the other books he has written, *The Family Book about Minimal Brain Dysfunction* and *The Boys and Girls Book about Divorce* give some idea of the flavour of his style. It is not one that easily crosses the Atlantic.

The technique Dr. Gardner employs is to present most of the information under headings which, he considers, are clichés used by parents and children. The chapter about education starts, after a brief introduction, with "Gee Dad when I grow up I want to be like you"—a discussion about the part identification plays in learning—and continues with, "I don't trust my kids with those 'high-brow' and 'Commie' teachers"—the importance of parental attitudes towards learning and teaching. The effect is odd and sometimes unintentionally funny.

Presumably, the purpose of this method is to relate theory closely to everyday situations rather than relying on the reader to make the links. It can also be provocative and lively. These advantages seem outweighed by the fact that one gets a slightly disjointed impression and loses the satisfaction of following a clear sequence of ideas.

The content of the book includes discussion about the child's inner functioning and about family interaction and relationships to the outside world of school friends, etc. When Dr. Gardner is discussing theory he sometimes seems facile but his advice about management, which is based on behavioural theories as well as his own psychoanalytic background, is often practical and helpful.

DAPHNE HOLBROOK

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"...developmental psychologists (including myself, here honored by having this work dedicated to me) are looking forward with great expectation to the emergence of *developmental psychopathology* as a new discipline. . . . The present collective study already represents a good beginning, activated as it is by the dynamism and conviction of Dr. Anthony."

Jean Piaget

a major book club selection

Explorations in Child Psychiatry

edited by **E. James Anthony**

foreword by **Jean Piaget**

Until recently, almost all serious studies of normal and disturbed children were carried out by investigators in various fields of psychology. But in the past several years, tremendous insights have been achieved by child psychiatrists themselves, who, with the great advantage of clinical experience, have ventured forth to examine the psychopathology of childhood. This remarkable volume, conceived and edited by E. James Anthony, demonstrates the numerous perspectives and the great range of these new explorations. Prominent practitioner-investigators explore the different worlds of the child from soma to psyche, infancy to adolescence, and normality to psychopathology.

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specific reading retardation

ER, MICHAEL and YULE, WILLIAM (1975) The concept of specific reading retardation. *J. Child Psychol. Psychiat.* **16**, 181-197.

Summary—Using the data from five epidemiological studies of the total child population, the traditional distinction between general reading backwardness (i.e. reading below average for age, regardless of I.Q.) and specific reading retardation (i.e. a deficiency in reading relative to the child's age and general intellectual level) is put to rest. The concept and measurement of underachievement are discussed and it is shown that severe degrees of specific reading retardation occur at a rate above that expected on a statistical basis, suggesting a "hump" at the lower end of the distribution. Specific retardation is shown to differ significantly from reading backwardness in terms of sex ratio, neurological disorder, pattern of neuro-developmental deficits and educational prognosis. It is concluded that the concept of specific reading retardation is valid, but evidence is discussed which shows that this does *not* support the view of a specifically distinct syndrome of dyslexia.

asthma, dependence-independence conflict

LIAM, JOHN S. (1975) Aspects of dependence-independence conflict in children with asthma. *J. Child Psychol. Psychiat.* **16**, 199-218.

Summary—The study set out to verify by the experimental method several hypotheses arising out of the analytic literature concerning the dynamics of the asthmatic child. Two groups of asthmatic children, differing in severity, were matched and compared with two control groups, one normal and the other with chronic chest disease. The asthmatic and normal children were drawn from random samples of the 10-yr-old population within the Melbourne (Australia) Metropolitan Area. The asthmatic children demonstrated an excessive dependence-independence conflict with an intensive mother-child bond and core anxiety around the threat of separation. Under such a threat "Australian" themes were more predominant. It was tentatively concluded that this complex of variables was specific to asthma.

infant school children,
temperament dimensions

GARSDALE, R. F., BIRCH, H., SCOTT, D. MCL., CHAMBERS, S., KOLVIN, I., TWEDDLE, and BARBER, L. M. (1975) Dimensions of temperament in infant school children. *Child Psychol. Psychiat.* **16**, 219-231.

Summary—A Principal Component Analysis of 39 temperamental attributes in a random sample of 209 infant school children produced four meaningful components. These identified components make an important contribution to an understanding of temperamental organization. A brief questionnaire using the above data has been developed for measuring temperament in infant school children. There are 30 questions with appropriate probes which relate to four components (dimensions) (a) Withdrawing, poor adaptation, dependence, etc.; (b) High activity, intensity, distractibility; (c) Moodiness, sulkiness; (d) Irregularity. Tentative norms are provided for the four dimensions.

five-year-old children,
interpretation of conservation

RUSSELL, JAMES (1975) The interpretation of conservation instructions by five-year-old children. *J. Child Psychol. Psychiat.* **16**, 233-244.

Summary—This paper presents an attempt to test Piaget's notion that the language reflects his cognitive level, by examining how five-year-olds interpret conservation expressions "same amount of room" and then attempting to re-educate them on semantics. Interpretations were generally in terms of height or shape, depending on whether children produced or selected the comparison, implying that failure to understand a classic conservation task is due to misinterpretation of the instruction rather than to witnessing the perceptual transformation. Correct interpretations were common when neither shape nor height variables were perceptually salient. Semantic re-education corrected "shape" but not "height" interpretations, implying that failure to conserve is not a purely semantic failure.

separation, parents,
young children

TH, LARS (1975) Effects of brief separation from parent on young children. *J. Child
hol. Psychiat.* **16**, 245-254.

Summary—Data on child-parent interaction, activity and behaviour in a test situation
e obtained from young children who had had a single 3-min separation and from
-separated controls. During separation, crying increased and non-crying vocaliza-
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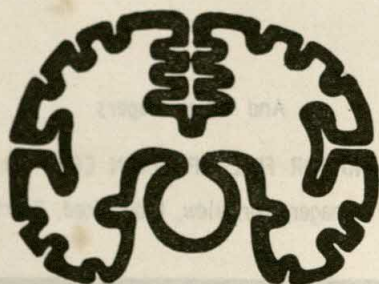
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PREVALENCE OF BEHAVIOUR PROBLEMS IN 3-YEAR-OLD CHILDREN: AN EPIDEMIOLOGICAL STUDY IN A LONDON BOROUGH

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Department of Psychological Medicine, Hospital for Sick Children,
Great Ormond Street, London WC1 3JH, England

INTRODUCTION

STUDIES of the prevalence and incidence of psychiatric disorder in the young have been carried out with both adolescents (Graham and Rutter, 1973) and school-age children (Shepherd *et al.*, 1971; Rutter *et al.*, 1970). However, there is little information available to us about ways of classifying or describing behaviour and emotional problems in the preschool child, about the prevalence of such problems, and about the factors associated with their appearance or prognosis—information which is essential for those providing and evaluating services for young children and their families. A survey of the prevalence of behaviour problems in 3-year-old children living in a London Borough was carried out as a basis for examining some of these questions.

SAMPLE

The children in the sample were drawn from a Family Register which consists of families living in the Borough with a child born after March 1969 (Richman and Tupling, 1974). Names of the families are obtained from the birth notification lists supplied to the Local Authority, and in addition information about families moving into the Borough with a child in the appropriate age group is gathered from Health Visitors and council letting lists.

A number of families who have moved into the Borough after the birth of a child in the relevant age group will be missing from the register, but it is sufficiently complete to provide a suitable sampling frame for a population survey. The birth rate in the Borough is about 4,000 a year and it is estimated that about 15 per cent of each year's births leave the Borough every year, and are replaced by an approximately equal number of families with children in the same age range who move into the Borough. This outer London Borough has a population representative of the country as a whole in terms of social class as determined using the Registrar General's classification. Mobility is less than in most inner London boroughs and about 15 per cent of the families are "immigrant", i.e. the parents were born outside Great Britain.

With the parents' permission, demographic information on the families is supplied to the Register by the Health Visitor concerned with the family; using this information, which is available on a computer, a 1 in 4 random sample was drawn every month of children who were going to be 3 in the following month. In 12

Accepted manuscript received September 1974

monthly samples beginning April 1972 nearly 1000 families were drawn from the Register. Out of 955 possible contacts, we were unable to trace 90 (9.4 per cent) who might still have been living in the Borough; there were 32 (3.3 per cent) refusals, and 5 families could not be interviewed because of language difficulties. Of the 828 families who were contacted, 123 (14.8 per cent) families fell into the "immigrant group" defined by us as a family where the mother had lived in Great Britain or Eire less than 20 yr; the present paper will be concerned with the remaining 705 families.

METHOD—FIRST STAGE

Each family was sent a letter explaining about the nature of the survey and was then visited at home by a trained interviewer, who carried out a semi-structured screening interview dealing with the index child's health, development and behaviour, and some social aspects of the family. The child's language was assessed by the interviewer who used a simple screening procedure and rated the complexity of the child's syntax during the entire interview. This language screening was used to select a group of children with language delay who will be described in a separate paper (Stevenson and Richman, 1974). Part of the screening interview consisted of a Behaviour Screening Questionnaire (B.S.Q.) dealing with 12 items of problem behaviour. These items are sleeping, eating, encopresis, attention seeking and dependency, relations with other children, activity, concentration, control, tempers, mood, worries, fears. The items can be scored 0, 1 or 2 and summed to provide a Behaviour Score. The reliability of the B.S.Q. has been found satisfactory and using a cut-off point of 10, it is able to discriminate between children attending a psychiatric clinic and a group drawn from routine attenders at child health clinics and from nursery classes (Richman and Graham, 1971). In our original publication, a cut-off point of 11+ points was used but, in order to ensure as few "problem" children as possible were missed in this study, we decided to take a cut-off point of 10, and this decision seems justified in the light of the distribution of total scores (Fig. 1).

All children who received a score of 10 or more on the B.S.Q. were assigned to the "problem" group. They were matched by sex and social class (Registrar General

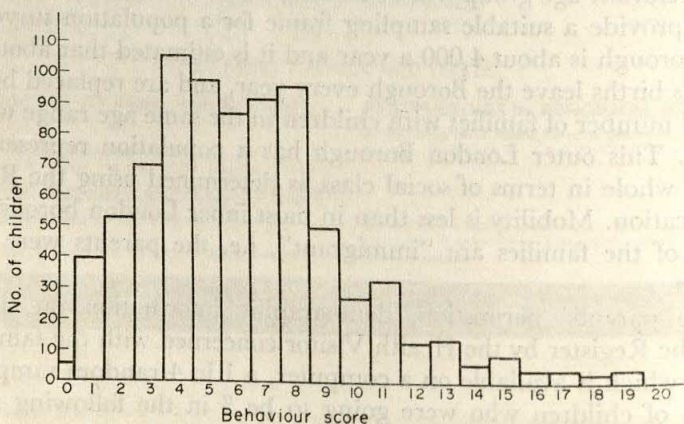


FIG. 1.

Classification, 1971) with the nearest child on the lists of children which had been prepared monthly by random selection of a 1 in 4 sample from the original computer printouts, thus forming the control group of children. Only the children in the problem and control groups plus those with language delay were involved in the second intensive stage of the survey; there were 101 children in each of the problem and control groups and 20 children who, on our screening criteria, had language delay (two of these language delay children were also in the control group and ten were also in the problem group (Fig. 2).

705 Three-year-old children

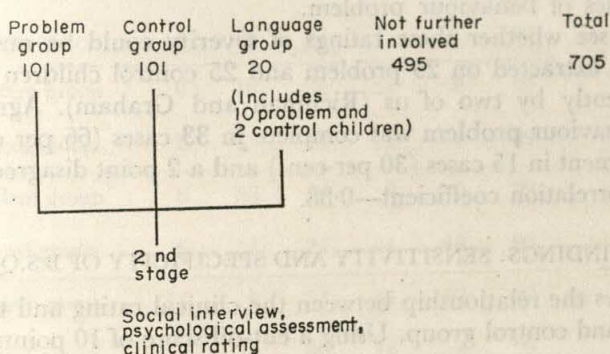


FIG. 2

METHOD—SECOND STAGE

In the second stage of the survey, a second interview—the social interview—was carried out at home dealing with family and social relationships and the parents' health; in addition each child was seen by the same psychologist (Mr. James Stevenson) for a language and developmental assessment (Stevenson, 1974). One family in the problem group refused to take part in the second stage of the survey; and in another, family assessment was incomplete: this left 99 matched pairs of children on whom information was complete.

The social interview was usually carried out by a different interviewer but, because of organisational difficulties, it was not always possible to ensure that this was the case and that the interviewer was ignorant of whether the child concerned was a "problem" or "control". However the developmental assessment was always carried out in ignorance of this information and included a rating of the child's behaviour whilst being tested. This rating on fourteen dimensions of behaviour provides some concurrent validation data for the B.S.Q. The dimensions rated were Test Task Understanding, Rapport, Guessing, Speed of Response, Spontaneous Speech, Directive Speech, Task Orientation, Motor Activity, Fidgetiness, Response Perseveration, Need for Tester Praise, Need for Parental Contact, Habits, and Mood. Five of these items were selected as likely to reflect aspects of behaviour that the B.S.Q. was attempting to measure, namely Rapport, Task Orientation, Motor Activity, Fidgetiness, and Mood. Reliability data have previously shown that all

scales showed a high degree of stability on retesting of the same child (Stevenson *et al.*, in preparation).

FINAL CLINICAL RATING

Using all the information available, a final rating of the child's behavioural status was made as in normal clinical practice. These clinical ratings ranged from no problem, to dubious, mild, moderate, and severe. Severity ratings were based on evidence from the two interviews on the frequency and duration of the problem behaviour as well as on the amount of suffering apparent within the child affecting his relationships with adults and children, ability to play and independence. Appendix I contains case histories of three children chosen at random to illustrate different severities of behaviour problem.

In order to see whether these ratings of severity could be made consistently, information was extracted on 25 problem and 25 control children who were then rated independently by two of us (Richman and Graham). Agreement on the severity of a behaviour problem was complete in 33 cases (66 per cent), there was 1 point disagreement in 15 cases (30 per cent) and a 2 point disagreement in 2 cases (4 per cent). Correlation coefficient—0.88.

FINDINGS: SENSITIVITY AND SPECIFICITY OF B.S.Q.

Table 1 shows the relationship between the clinical rating and the B.S.Q. score in the problem and control group. Using a cut-off score of 10 points on the B.S.Q.,

TABLE 1. AGREEMENT BETWEEN SCORE ON B.S.Q. AND CLINICAL ASSESSMENT

Clinical assessment of problem	Problem group score 10+	Control group score < 10
None/dubious	6	90
Mild	42	10
Moderate	44	0
Marked	8	0
Total	100	100

it appears that there are 6 false positives, i.e. children assigned to the problem group who on clinical assessment have a dubious or no behaviour problem. There are 10 false negatives, i.e. children in the control group who on clinical assessment appear to have a mild behaviour problem. The B.S.Q. is thus able to select out 100 per cent children with moderate to severe behaviour problems but only just over a third of those with mild behaviour problems. This calculation is based on estimating that 62 children (10 per cent of those not selected) with mild behaviour problems were not identified by the B.S.Q. score in addition to the 44 children who were. Six per cent of the children selected using a cut-off point of 10 are likely to be false positives.

Although the average B.S.Q. score of the group clinically assessed as having moderate to severe behaviour problems was 2 points higher than that in the group

rated as clinically mild, these findings emphasise the limitations of using symptom counts as a means of categorising "disturbance". With a 3 point rating scale discrimination between different levels of severity is limited and important qualitative differences are not brought out. Table 2 shows there to be a significant association

TABLE 2. RATINGS FOR PROBLEM AND CONTROL GROUPS: BEHAVIOUR DURING TESTING

Behaviour	Group	High				Low		Total	<i>d.f.</i>	χ^2	<i>p</i>
		0	1	2	3	4					
Rapport	Control group	19	38	27	13	2	99	4	13.345	***	
	Problem group	7	32	29	21	10	99				
Task orientation	Control group	1	36	37	23	2	99	3	9.999	**	
	Problem group	0	18	38	35	8	99				
Motor activity	Control group	2	35	49	13	0	99	2	1.426	NS	
	Problem group	6	38	46	9	0	99				
Fidgetiness	Control group	6	7	24	44	18	99	4	4.752	NS	
	Problem group	14	9	23	41	12	99				
Mood	Control group	3	38	40	14	4	99	3	0.535	NS	
	Problem group	4	36	37	19	3	99				

** = $p < 0.02$. *** = $p < 0.01$.

between problem behaviour (as defined by the B.S.Q.) and two of the five items thought likely to relate to such behaviour during testing, namely poor rapport and task orientation. The problem group had, however, only a non-significant tendency to be more active, more fidgety and show extremes of mood either sad or disinhibited.

The problem and control group were also found to differ significantly in two of the other nine behavioural items rated during the developmental assessment, namely speed of response ($\chi^2 = 8.57$, $d.f. = 2$, $p < 0.02$) and test-task understanding ($\chi^2 = 5.39$, $d.f. = 1$, $p < 0.05$). The problem children were slower in speed of response and showed poorer understanding of the test task. These findings provide some independent validation of the effectiveness of the B.S.Q. in identifying deviant behaviour.

OVERALL PREVALENCE OF BEHAVIOUR PROBLEMS

Adding the 10 per cent mild cases presumably missed from the total sample, the rates of behaviour problems in the total population of 3-yr-olds screened are estimated as shown in Table 3. Approximately 7 per cent of the total population of 3-yr-olds have a behaviour problem which is moderate to severe, a finding very similar to those in older age groups (Rutter *et al.*, 1970; Graham and Rutter, 1973)

and 15 per cent had mild behaviour problems. It is worth noting that the rate of behaviour problems in the "immigrant" group was about the same.

TABLE 3. ESTIMATED PREVALENCE OF BEHAVIOUR PROBLEMS IN A TOTAL POPULATION OF 3-YEAR-OLD CHILDREN

	Boys		Girls		Total	
No problem/dubious	260	(76.0%)	287	(79.0%)	547	(77.6%)
Mild	50	(14.6%)	56	(15.4%)	106	(15.0%)
Moderate	26	(7.6%)	18	(4.9%)	44	(6.2%)
Severe	6	(1.7%)	2	(0.5%)	8	(1.1%)
Total	342		363		705	

χ^2 N.S.

Boys have higher overall rates of moderate-severe problems than girls, but the differences are not significant; nor were there significant differences in the prevalence rates of problems in different social classes.

TABLE 4. PERCENTAGE OF 3-YEAR-OLD CHILDREN RATED '2' ON VARIOUS BEHAVIOURAL ITEMS

	Total population			Problem group scoring 10+ on B.S.Q.		
	Boys (314)	Girls (343)	Total (657)	Boys (57)	Girls (42)	Total (99)
Poor appetite	17.2	17.2	17.2	48.0	47.6	46.0
Faddy eater	12.7	10.8	11.7	26.0	30.9	28.0
Difficulty in settling at night	15.0	10.2	12.5	25.6	33.3	27.3
Waking at night (at least 3 times a week)	14.0	14.6	14.3	24.6	30.9	27.3
Sleeping with parents	11.1	11.4	11.3	21.0	19.0	20.2
Overactive	16.9	10.5	13.7*	59.6	54.8	58.6
Poor concentration	5.4	5.2	5.3	22.8	28.6	25.2
Dependency	6.0	4.9	5.5	19.3	14.3	17.2
Attention seeking	8.9	10.2	9.6	35.1	47.6	40.4
Temper	5.7	5.2	5.5	26.3	23.8	25.2
Difficult to control	12.4	9.9	11.1	54.4	54.8	54.4
Unhappy mood	3.8	4.1	3.9	14.0	23.8	18.2
Worrier	2.5	2.6	2.6	3.5	9.5	7.1
Fears	8.0	17.2	12.8**	14.0	85.7	44.4***
Relations with sibs	10.8	10.7	10.7	32.6	37.1	34.5
Relation with peers	6.2	5.9	6.0	25.9	24.4	25.3
Soiling (once a week or more)	17.8	7.9	12.6***	40.5	19.0	25.3
Recent onset soiling	4.1	0.9	2.4**	12.3	2.4	8.1
Night wetting (3 nights a week at least)	44.0	30.3	36.8**	56.0	35.7	47.5
Recent onset night wetting	6.9	4.1	5.3	7.0	4.8	6.0
Day wetting (once a week or more)	23.2	11.1	16.9***	42.1	14.3	30.3*
Recent onset day wetting	4.1	1.4	2.7	7.0	0.0	4.0

Sex differences: * = $p < 0.05$. ** = $p < 0.01$. *** = $p < 0.001$.

PREVALENCE AND SIGNIFICANCE OF INDIVIDUAL ITEMS OF BEHAVIOUR

Table 4 shows the prevalence of individual behaviours or symptoms in the total sample and in the "problem group". Boys and girls have similar rates in most cases but there are some important differences. Boys are significantly more often described as too active, and they are significantly more likely to be wetting at night and during the day, and to be soiling, and to have relapsed in sphincter control after a period of being clean and dry. Girls are significantly more fearful especially in the problem group. Over a third of the total sample of 3-yr-olds was still wetting the bed at least 2 nights a week. All items from the B.S.Q., apart from worries, occur significantly more frequently in the behaviour problem group as would be expected from the method of scoring.

Table 5 shows the proportion of children scoring 10 or more points if rated 2 on an individual symptom. It might be possible to increase the sensitivity of the B.S.Q. if individual weightings could be given to each behaviour according to its ability to predict the presence of a behaviour problem, and further analysis will be required

TABLE 5. PERCENTAGE OF 3-YEAR-OLDS RATED '2' ON VARIOUS BEHAVIOUR ITEMS WHO SCORE 10+ ON THE B.S.Q.

	Boys		Girls		Total	
	Total No. rated '2'	% rated '2' who scored 10+ on B.S.Q.	Total No. rated '2'	% rated '2' who scored 10+ on B.S.Q.	Total No. rated '2'	% rated '2' who scored 10+ on B.S.Q.
Poor appetite	54	45.0	59	33.9	113	40.7
Faddy eater	40	37.5	37	35.0	77	36.3
Difficulty in settling at night	47	29.8	35	40.0	82	34.1
Waking at night (at least 3 times a week)	44	31.8	50	26.0	94	28.7
Sleeping with parents	35	34.3	39	20.5	74	27.0
Overactive	53	64.0	37	64.8	90	64.4
Poor concentration	17	76.5	18	66.7	35	71.4
Dependency	19	57.9	17	35.0	36	47.2
Attention seeking	28	71.4	35	57.0	63	63.5
Tempers	18	83.3	18	55.5	36	69.4
Difficult to control	39	79.5	34	67.6	73	74.0
Unhappy mood	12	66.7	14	71.0	26	69.2
Worrier	8	28.6	9	44.4	17	41.2
Fears	25	32.0	59	61.0	84	52.4
Poor relation with sibs	29	27.6	30	43.0	59	35.6
Poor relation with peers	19	73.7	20	50.0	39	61.5
Soiling (once a week or more)	56	30.3	27	29.6	83	30.1
Recent onset soiling	13	53.8	3	33.3	16	50.0
Night wetting (3 nights a week at least)	138	23.2	104	14.4	242	19.4
Recent onset night wetting	21	19.0	14	16.7	35	17.1
Day wetting (once a week or more)	73	32.9	38	15.8	111	27.0*
Recent onset day wetting	13	30.7	5	0.0	18	22.2

Sex differences: * = $p < 0.05$.

to examine this possibility. It is obvious that in this age group wetting at night is very common and does not relate to the presence of a behaviour problem. However, wetting during the day and soiling, especially if there is a relapse after a period of sphincter control, are significantly associated with behaviour problems.

DISCUSSION

Our findings suggest that the rate of behaviour and emotional disorder in the pre-school period is very similar to that in later childhood and early adolescence (Rutter *et al.*, 1970; Graham and Rutter, 1973). Using a method demonstrated to be reliable and valid, this study has shown that it is possible (providing criteria are carefully laid down) to identify as moderately or severely disturbed 6-7 per cent of an urban population of 3-yr-olds. Our impression of the disorders we have identified in these children in the community is that they have a serious and significant impact on family life and relationships, and that their existence implies a problem in society towards which professional interest should be directed. There is no reason to think that our findings in this population cannot be generalised to other similar populations, although it is certainly possible that, as with older children, the rates of disturbance are lower in non-urban groups (Rutter, 1973).

The presentation of clear-cut quantitative statements concerning the prevalence of emotional and behaviour disorders in young children can be misleading in a number of ways. Obviously pre-school children are highly reactive to their environment and it is somewhat artificial to regard them in apparent isolation especially from their parents. It is uncertain how meaningful it is to identify disorders within children rather than within families or within, for example, mother-child couples. The justification for such an approach must lie in the identification of such disorders as dependent variables significantly correlated with other aspects of family life or wider social factors. In further publications (Richman—submitted for publication) we shall examine the pattern of these correlations further.

We have seen evidence of the validity of the B.S.Q. from the data obtained about the children's behaviour during testing. Otherwise our method relies heavily on reports given by parents about the behaviour of their children, and such reports could be inaccurate. Further evidence of validity is provided by the results of an earlier pilot study which suggested that a high score on the B.S.Q. related significantly to attendance at a specialised psychiatric facility (Richman and Graham, 1971). More direct data are, however, needed to compare the parental reports on specific items of behaviour and the actual occurrence of such behaviour.

The fact that social class, as assessed by the occupation of the father, did not relate to the presence of behaviour problems within the child, did not surprise us. Studies of older children (e.g. Graham and Rutter, 1973) show similar findings. However this does not mean that social factors impinging more directly on the life of the child might not be important, and indeed our findings reported elsewhere (Richman—submitted for publication) do suggest that, for example, type of housing and certain aspects of family life and relationships are indeed linked to the existence of behaviour problems within the child.

The existence of significant sex differences in relation to certain individual items of behaviour even in this young age group is interesting, although there were no

significant differences between the sexes in overall scores. The individual items showing greatest differences were those involving fears, delay in sphincter control and in activity. Sphincter control is generally later to develop in boys, and sex differences have also been shown to occur in older age groups. That such delays are unlikely to be due to purely developmental factors and may be more related to emotional disturbance is suggested by the strong relationship between a score of 2 on the soiling and wetting items, and the presence of a behaviour problem in the child. This possibility will be examined further elsewhere (Graham and Richman—in preparation). Girls were significantly more fearful than boys, a finding in agreement with other studies of young children (McFarlane *et al.*, 1954). The fact that boys significantly more often show overactivity may have more relevance for subsequent personality development. Overactivity is also more frequent in older, prepubertal boys (Rutter *et al.*, 1970) and it is well known that severe overactivity in this age group is sometimes a precursor of serious learning difficulties and delinquency (Weiss *et al.*, 1971).

It is not feasible to determine at this stage whether the possible link between pre-school overactivity and the later development of educational and behaviour problems might arise from adverse temperamental attributes, from a common social influence or, as we are inclined to believe (Graham *et al.*, 1973) from an interaction between the two. What seems important to note is that such overactivity can be detected as more frequently present in the pre-school period.

Although the finding of a high rate of behaviour problems in this age group certainly suggests the need for more professional interest in, and concern for, these young children, no clear-cut implications for services emerge from this study. Elsewhere we have suggested that social and family factors may be the most important influences bearing on the behaviour of young children, and it may be that community attention to these factors, rather than, for example, provision of extra psychiatric facilities, might bring more relief to the families affected and improve the quality of their lives. The presence of a "problem" within a child should not be equated with the presence of a mental disorder or illness, and in our view attempts to produce medical solutions are less likely to be effective than a re-examination of the role young mothers play in society together with the esteem (or lack of it) ascribed to their child-rearing activities.

SUMMARY

In an epidemiological study of the behaviour of a 1 in 4 sample of 3-year-old children living in a North London Borough, it was found that 7 per cent had a behaviour problem which was moderate or severe. A further 15 per cent had mild behaviour problems. There were no significant social class differences. Boys were significantly more likely to be overactive, to be wetting at night and during the day, to be soiling and to have relapsed in sphincter control after a period of being clean or dry. Girls were more likely to be fearful: there were no other sex differences in the frequency of problem behaviour.

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APPENDIX

Mild behaviour problem

A very active girl, often in difficulties because interfering and touching things, e.g. when shopping; breaks ornaments, spills things in fridge because she cannot leave them alone; keeps touching the t.v. when everyone is trying to watch. Can amuse herself and play with others but may spend the whole day walking around moaning. Very upset when left even with people she knows; may cry herself sick. Worries if brother or father out late, very scared of strangers even after several meetings, worries about cuts; quite afraid of the dark. Takes over an hour to get to sleep; has to lie in father's arms, usually settles about 10.30 p.m. Poor appetite, faddy eater.

Moderate behaviour problem

Very active, exhausting and difficult boy, does one destructive thing after another, and always has to be watched to see what he is up to. Defiant—runs down the road and has to be chased; when taken out shopping have to use reins. "Runs riot" when out. When put in his room, got up the chimney and soot came down everywhere. Sits down in pools, wipes faeces round the lavatory, draws on the wall and sideboard, tears cigarettes to pieces. Has an irritating continual high pitched wail. Jealous of sisters but can play with them and with other children. No worries or fears. Takes up to an hour to settle at night then sleeps through. Wants a lot of attention; can be left with others, and amuse himself for short periods only.

Marked behaviour problem

Very active, never sits still, runs like a madman, even when watching t.v.; won't stay still; sometimes plays on own for short periods, but usually demanding attention. Mother has to spend most of the day trying to amuse him. If he cannot get what he wants has a temper, often screams for an hour, e.g. in shops takes things off shelves, throws them if mother says he cannot have them. Defiant and destructive. Particularly bad when younger brother there, demands more attention. Refuses to wear anything from waist downwards. Can't be left with anyone for more than an hour, won't let others do anything for him. Runs after mother every time she goes to toilet, he tries to get

there before her, and then bangs and screams outside. Worries over people dying and monster upstairs, won't stay in bedroom alone. Can't be left alone in same room as younger brother because he hits him so much. Friend with baby of 18 months stopped visiting because he frightened the baby. If he can't get his way, everything goes flying; won't share, can't take him to play with other children, fights, withdrawn from playschool. Takes up to 2 hr to settle at night, screams, keeps coming down, may have to sleep with him. Wakes most nights and screams, usually taken into parents' bed.

IMIPRAMINE IN ENURESIS—PSYCHOLOGICAL AND PHYSIOLOGICAL EFFECTS

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INTRODUCTION

THOUGH the tricyclic antidepressants are used extensively in adult psychiatry, their use in children has been mostly confined until recently, to the treatment of enuresis. While the efficacy of imipramine in enuresis in reducing the frequency of wetting in the short term is well established in properly controlled studies, its ability to produce lasting cures is in dispute (Angst and Theobald, 1970; Blackwell and Currah, 1973; Kolvin *et al.*, 1973). Though some, especially child psychiatrists who have been shown to see a very biased sample of enuretics (Shaffer, 1973; Werry, 1967, 1972), consider that the efficacy of imipramine is because enuresis is actually a depressive equivalent, majority opinion favours some centrally mediated autonomic action, effect on sleep phases or local anticholinergic action on the bladder (Angst and Theobald, 1970).

In trials of imipramine in enuresis there have been few reports of any side effects and little comment on any behavioural effects except where ascribed to relief of the enuresis or the underlying depression. Not only has there been little systematic study of possible psychotropic effects, but also ignored have been effects on cognitive function and physiological systems outside the bladder. This is unfortunate since most enuretic children are psychiatrically normal (Hallgren, 1957; Kanner, 1960; Kolvin *et al.*, 1972; Shaffer, 1973; Werry, 1967, 1972) and offer a unique chance to study the action of antidepressants in normal subjects, a matter of some dispute (Angst and Theobald, 1970) which will be discussed in more detail below.

Recently imipramine has been used increasingly in the treatment of the hyperkinetic reaction and other disorders such as school phobias with generally favourable reports (Gittelman-Klein and Klein, 1972; Huessey and Wright, 1970; Rapoport, 1963; Rapoport *et al.*, 1974; Ryback *et al.*, 1973; Waizer *et al.*, 1974; Winsberg *et al.*, 1972). This use in child psychiatric conditions has, not unnaturally, provoked a greater interest in psychotropic action and there also appears to have been a greater noting of side-effects, perhaps because doses are twice or more those used in enuresis. Side effects reported include drowsiness, insomnia, sadness, autonomic and gastrointestinal symptoms, loss of weight, seizures, postural hypotension and raised diastolic pressure (Angst and Theobald, 1970; Brown *et al.*, 1973; Gittelman-Klein and Klein, 1973; Rapoport *et al.*, 1974; Ryback *et al.*, 1973; Waizer *et al.*, 1974).

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It has been assumed that the therapeutic action of imipramine in hyperkinetic children is due to its catecholaminergic action and hence similarity with the stimulants, but since imipramine is chemically similar to the phenothiazines and drowsiness is a commonly reported effect, it is possible that the action is more ataractic than analeptic or perhaps both.

Only the study by Rapoport *et al.* (1974) appears to have used the kind of cognitive test which is necessary to help establish whether a drug is indeed acting as an analeptic or a neuroleptic. In doses averaging 80 mg per child, weak signs of improvement in cognitive function suggestive of an analeptic action were noted but to a significantly lesser degree than with methylphenidate. Though the predominant *psychotropic* side effects noted by Rapoport *et al.* were drowsiness and sadness, suggestive of a depressant action, the *physical* effects of weight loss and increase in diastolic pressure were of a stimulant type. Waizer *et al.* (1974) noted only stimulant-like effects of imipramine and weight loss. Gittelman-Klein and Klein (1973) who used imipramine in school phobias, claim that, in that condition at least, imipramine was not distinguishable from placebo in doses of less than 100 mg, the mean effective dose being 150 mg/day in children aged 6-14 and that a period of six weeks was necessary for the appearance of therapeutic effect. All their subjects ($N = 15$) on imipramine whether returned to school or not reported themselves as "feeling better" suggesting some kind of euphoriant effect, and affirming the possibility of analeptic type action at least in psychiatrically disturbed children.

In summary then, imipramine is used widely (certainly so in New Zealand) for the treatment of enuresis in average dose of 25-50 mg for children under 11 yr of age but the frequency of psychotropic "side effects" and the mode of action of the drug are unclear. The higher doses used in child psychiatric conditions have revealed clear evidence of psychotropic action and a larger number of side effects with drowsiness predominating initially, giving way after a few days to stimulant type effects of insomnia, gastrointestinal upset, weight loss and raised blood pressure. The issue of whether the drug acts as a stimulant, antidepressant or neuroleptic is, however, still unclear and reflects a larger confusion about the action of the drug in general. While it is well accepted that imipramine elevates the mood of a significant number of patients with severe depressions, there is uncertainty about whether this psychoanaleptic effect is peculiar to depression or characteristic of the pharmacology of the drug. In short, whether or not it has a *general* stimulant-like action. Most studies in normal volunteers have revealed a neuroleptic type action with sedation, irritability and psychomotor slowing (Angst and Theobald, 1970). However, these studies are all of an acute nature and it is well known that the psychoanaleptic effect of the tricyclics takes several days to weeks to occur. The few studies in normals in which the drug has been given for at least a week, suggest that the antidepressant or stimulating effect does indeed occur (Angst and Theobald, 1970).

Further, a mood elevating effect would, in all probability be missed in treating children with psychiatric conditions like hyperkinesis since it would be perceived simply as behavioural improvement. It is extremely difficult to elicit information about euphoriant effects from children partly because of the age group involved (6-9 yr) but also because children are expected to be happy and while, of necessity,

they have a vocabulary to express pain and discomfort, expressions of positive mood are not required or taken as normal (Werry and Sprague, 1974). It is of interest therefore, that in their study of school phobia noted above, Gittelman-Klein and Klein (1973) noted universal reports of "feeling better" which, in keeping with the known delay in onset of action of imipramine, took several weeks to develop.

A study of enuretic children could therefore not only yield valuable information about unintended effects of imipramine in that condition but add to our basic knowledge about the action of antidepressant drugs. For these reasons it was decided to do such a study in which particular attention could be paid to psychotropic, cognitive and physiological effects.

METHOD

The basic design of the study was: double-blind, placebo-controlled and crossover. Medication was dispensed in identical capsules and taken for three weeks as a single dose of 50 mg (2 capsules) at bedtime after a three day period of 25 mg as a test period for side effects. Parents were informed that there would be a placebo phase but that it might come first or second. The two possible drug orders (Drug-Placebo, Placebo-Drug) were counterbalanced across subjects.

Subjects

These were enuretic boys, not previously treated with antidepressants, aged 5-11, obtained by placing a story about the project (as a study of bedwetting) in a local newspaper. The choice of ages was not only because that is the maximum prevalence of the problem *qua* "disease" but because subjects would thus provide a normal control group for a concurrent study of the effect of imipramine in hyperkinetic children. All were seen and evaluated by the senior author, a child psychiatrist.

Measures used

Most of the measures came from the newly published *Psychopharmacology Bulletin*, 1973. Children's battery for psychopharmacology studies prepared by the Early Clinical Drug Evaluation Unit (ECDEU) of the Psychopharmacology Research Branch of the (US) National Institute of Mental Health. Others, particularly the memory tests, were developed by the senior author's colleague, R. L. Sprague (Sprague and Werry, 1971) in the search for short, repeatable, drug-sensitive measures of cognitive function in children. The measures used are set out in Table 1.

TABLE 1. MEASURES USED

Psychiatrist	Parent	Research staff
(1) History and psychiatric examination	(1) Children's personal data inventory (CPDI)	(1) Height and weight*
(2) Prior medication record (PMR)	(2) Children's symptom history (CSH)	(2) Blood pressure (lying and standing)*
(3) Children's diagnostic scale and classification (CDS, CDC)	(3) Conners parent questionnaire (PQ)*	(3) Heart rate (lying)*
(4) Clinical global impressions (CGI)*	(4) Self rating treatment emergent symptom scale (STESS)*	(4) Walk-on-floor eyes closed, walk-a-rail*
(5) Dosage and treatment emergent symptoms (DOTES)*	(5) Daily wetting record*	(5) Continuous performance test (CPT)*
(6) Anecdotal observations*		(6) Short term memory*

Note: Acronyms in parentheses are those of measures used in the (U.S.) National Institute of Mental Health ECDEU battery for psychopharmacological studies in children and supplied by that unit.

*Given at pretest and both drug phases.

Data on the reliability and validity of these measures varies. The diagnostic methods used to determine a child's psychiatric status (history, examination, prior medication record (PMR), personal data inventory (PDI), symptom history (CSH), diagnostic scale and classification (CDS, CDC) are fairly traditional except those with initials in parentheses have been systemised (*Psychopharmacology Bulletin*, 1973). Previous work has shown that the CDC is reliable between observers (Werry and Sprague, 1974) and that the senior author can detect psychiatric abnormality in these diagnostic procedures as validated by teacher ratings (Sprague *et al.*, 1974; Werry and Sprague, 1974). However, it has not been possible, (1) to find another child psychiatrist formally to check his interobserver reliability and (2) to make any statements about his ability to detect *normality*. Thus the reliability and validity of his diagnostic methods is only partially known, and this must be taken into account in assessing the results.

The Parent Questionnaire developed by Conners (1972) (*Psychopharmacology Bulletin*, 1973) has fairly good test-retest reliability but has the characteristic of many children's rating scales of a drift towards "improvement" over time, most marked between first and second administrations (Werry and Sprague, 1974). For this reason pretest data was discarded in the present study. Its sensitivity to drug effects is fairly well established (Conners, 1972) though the authors' experience is somewhat less favourable (Werry and Sprague, 1974). No norms exist to enable it to be used as a diagnostic (rather than a dependent variable) measure.

Blood pressure and heart rate were recorded after subjects had lain supine while having stories read to them for five min. Previous work had shown over 95 per cent levels of agreement for these measures (Aman and Werry—in press). Memory and attention tasks are described in detail elsewhere (Sprague and Werry, 1971; Werry and Aman—in press). The simple balance tests (walk-across-floor, eyes closed and walk-a-rail) are taken from the U.S. Naval Aerospace Pensacola Medical Laboratory's Ataxia Battery (Fregly *et al.*, 1971; Fregly *et al.*, 1972).

A calendar type record of wetting was kept. It should be noted particularly that the clinical global impression was made on the basis of *behavioural* change rather than what had happened to the enuresis since the main interest of this study was in psychotropic actions.

All parents were rehearsed through the measures pretest. This is necessary to washout practice type effects on measures such as the parent questionnaire (PQ) (Werry and Sprague, 1974). Testing children took approximately one hr and was performed during the morning.

Analysis of data

Real numbers (e.g. weight, blood pressure) were analysed parametrically for drug effects by correlated *t*-tests and for drug order effects by two-way analysis of variance (Drug and Drug Order factors). Ordinal scales (most of the behavioural measures) were analysed by non-parametric tests (χ^2 and Wilcoxon Matched Pairs Signed Ranks Test).

RESULTS

Subjects

The characteristics of the subjects are set out in Table 2. The frequency of psychiatrically disturbed and mentally retarded children is a little higher than expected but not strikingly so and the majority of children were adjudged normal.

TABLE 2. BACKGROUND AND CLINICAL CHARACTERISTICS

(1)	(2)	(3)	(4)
<i>N</i> = 24 (3 dropouts)	Age (months) range = 76-137 mean = 104.9 <i>s.d.</i> = 20.58	Sex <i>M</i> = 24 <i>F</i> = 0	Diagnosis Normal = 18 Borderline retarded = 2 Hyperkinetic reaction = 1 Withdrawal reaction = 1 Adjustment reaction = 2

Three children dropped out of the study; one developed hepatitis (not drug related), one could not swallow the capsules. However, one subject developed severe side effects and could not be evaluated on any tests except behaviour and side effects. Thus 21 subjects had a complete set of data.

Effects on wetting, behaviour and side effects

These are set out in Table 3 and 4 where it is clear that even in this low dose imipramine is having psychotropic effects, both positive and negative; and some

Table 3. EFFECTS ON WETTING AND BEHAVIOUR

	Placebo	Imipramine	Statistic	<i>p</i>	
I. Wetting					
(1) Dry nights (<i>N</i> = 21)	29%	56%	<i>t</i> = 4.86	0.001	<i>df</i> = 20
(2) Retained on medication (<i>N</i> = 22)	5%	59%			
II. Behaviour					
(1) Clinical global impressions (<i>N</i> = 22)					
Improved	5%	50%	$\chi^2 = 24.2$	0.001	<i>df</i> = 4
Unchanged	77%	14%			
Worse	18%	36%			
(2) Parent questionnaire					<i>N</i> *
i Conduct problems	0.40	0.27	<i>T</i> = 10	< 0.05	12
ii Anxiety	0.25	0.26	<i>T</i> = 30	NS	11
iii Hyperactivity	0.38	0.31	<i>T</i> = 55	NS	15
iv Learning problem	0.18	0.17	<i>T</i> = 6	NS	5
v Psychosomatic	0.03	0.07	<i>T</i> = 14	NS	8
vi Perfectionism	0.62	0.79	<i>T</i> = 23	NS	12
vii Antisocial	0.07	0.07	<i>T</i> = 0	NS	0†
viii Muscular tension	0.21	0.10	<i>T</i> = 12	NS	8

* Number of non tied ranks in the Wilcoxon test.

† Perfectly random effect.

Correlation between CGI and wetting $\rho = 0.3747$ (*N* = 21, *p* < 0.05).

TABLE 4. UNINTENDED EFFECTS (*N* = 22)

	Placebo	Imipramine	<i>p</i>
Behaviour			
(1) Sedation/slowing	3	13	0.01
(2) Agitation/excitation	1	1	NS
(3) Cooperativeness, happiness	0	8	0.01
(4) Irritability, depression	4	7	NS
(5) Toxic psychosis	0	1	NS
Autonomic symptoms			
(1) Pallor	0	3	NS
(2) Nasal/oral	1	2	NS
(3) G.I. (anorexia, stomach ache, etc.)	1	7	< 0.10
Miscellaneous			
(1) Headache	0	2	NS
(2) Sleep	0	2	NS
(3) Stuttering	0	2	NS
(4) Blinking	1	1	NS
No side effects	12	0	0.001

degree of autonomic and gastrointestinal side effects. All the latter, except on one boy who developed a toxic confusional state, were mild. There was a significant ($p = 0.05$) but low ($\rho = 0.3747$) correlation between changes in wetting and behaviour.

Physical effects

These are detailed in Table 5. Mild tachycardia, raised diastolic pressure independent of posture and mild weight loss occurred on imipramine.

TABLE 5. PHYSICAL EFFECTS ($N = 21$)

	Placebo	Imipramine	Statistic	p
I. Cardiovascular				
(1) Heart rate (lying)	82	98	$t = 6.86$	0.001
(2) Blood pressure (lying)				
systolic	107	109	$t = 1.28$	NS
diastolic	65	73	$t = 2.86$	0.01
(3) Blood pressure (standing)				
systolic	113	112	$t = 1.16$	NS
diastolic	79	86	$t = 2.23$	0.05
II. Weight (kg)	29.5	29.3	$t = 2.04$	0.05
III. Balance				
(1) WOFE (steps)	15.7	11.3	$t = 1.30$	NS
(2) Walk-a-rail (steps)	5.5	5.7	$t = 0.32$	NS

d.f. for all tests = 20.

Effect on cognitive performance

These are described in Table 6. Though none of these was significant, with the exception of accuracy on the memory task, they all represent improvement in performance on imipramine.

TABLE 6. EFFECTS ON PERFORMANCE ($N = 21$)

	Placebo	Imipramine	Statistic	p
I. Vigilance (continuous performance)				
(1) Omission errors	0.85	0.81	$t = 0.50$	NS
(2) Commission errors	1.71	1.57	$t = 0.36$	NS
(3) Latency	33.0	32.5	$t = 0.93$	NS
(4) Speed	1.26	1.29	$t = 0.24$	NS
II. Short term memory				
(1) Accuracy*	84.1	81.2	$t = 1.20$	NS
(2) Latency	74.8	73.2	$t = 1.09$	NS
(3) Speed	0.59	0.65	$t = 1.40$	NS
III. Seat movement				
(1) During CPT	34.5	27.1	$F = 1.51$	NS
(2) During STM	131.8	87.7	$F = 5.74$	< 0.05
d.f. for $t = 20$, for $F = 1/19$				

*This was the only measure to show a significant ($p < 0.05$) drug order effect.

Effects on seat movement

Seat movement monitored by means of a special ballistographic device (Sprague

and Werry, 1971) during cognitive performance tasks showed a significant reduction with imipramine during the STM (Short Term Memory).

Drug order effects

Only one drug order effect was significant. Giving placebo before imipramine produced a significant improvement on accuracy on the short term memory task. In view of the large number (18) of such analyses, this should be regarded as probably only a chance finding.

Validity of the placebo control

At each of the two reassessments an attempt was made by the psychiatrist to guess what the child had received for that period. The results of this taking the actual drug as referrant were as follows: Placebo 82 per cent correct, imipramine 91 per cent correct or 86 per cent accuracy overall.

DISCUSSION AND CONCLUSIONS

It is important initially to point out the methodological shortcomings of this study which make the findings only tentative.

(1) The exact reliability and validity of the diagnostic procedures is unknown so that one cannot be absolutely sure of the psychiatric status of the children. However, the proportion of disturbed children is about what one would expect in a sample of enuretics coming to see a doctor for help with their enuresis (Hallgren, 1957).

(2) The changes in cognitive function were not statistically significant and the interpretation rests with their consistency across tests and with what would be expected from a stimulant type effect evidenced in the other measures (Conners, 1972; Sprague and Werry, 1971, 1974).

(3) Though the correlation between behavioural improvement and wetting was low ($p = 0.3747$). It was significant ($p = 0.05$) and with the error inherent in all psychiatric measures, very high correlations are infrequent. It is thus not possible to exclude that the behavioural improvement was secondary to improvement in wetting rather than to any euphoriant effect of imipramine.

Only a study of comparing an effective non-pharmacological method such as the bedbuzzer with imipramine could answer this question adequately. However, the small size of the correlation and the fact that 5 children (20 per cent) improved in wetting but deteriorated in behaviour, while 1 child improved in behaviour but deteriorated in wetting suggests that there is some psychopharmacological effect (of a biphasic type).

This study suggests that in enuretic children the usual small, nocturnal dose of imipramine is having small but definite psychotropic effects detectable throughout the day, both in parental observations of behaviour and less surely, in laboratory tests of cognitive function. It is also causing physiological effects. The nature of the changes are analogous to those seen with stimulants, such as methylphenidate, in hyperactive aggressive children (Conners, 1972; Sprague and Werry, 1971, 1974; Werry and Sprague, 1974), namely, (1) psychotropic (in a majority, behavioural improvement usually described as "happier in himself, more co-operative", in a minority, irritability and sedation) (2) physiological (tachycardia, raised diastolic

blood pressure, anorexia/weight loss) (3) cognitive (possible improved vigilance and performance) and (4) motor (reduction in overflow). Thus, as posited by others (see Rapoport *et al.*, 1974) imipramine appears to be acting as an analeptic *not*, as the senior author had suspected or as acute studies in normal subjects suggest (Angst and Theobald, 1970), as a neuroleptic.

The universality of the pharmacological effect observed here is subject to the following qualification: (1) it may differ after longer or shorter periods of administration, (2) it may differ in higher dosages (this seems unlikely since Gittelman-Klein and Klein (1973) who used very high doses (150 mg) found that positive mood predominated) and (3) it may differ in non-enuretic normal populations. Though many child psychiatrists would disagree, the evidence that enuresis in most children is simply an isolated somatic symptom, probably often of a genetic nature—practically all the children here had strong family histories obeying the law of decreasing frequency with decreasing consanguinity—is much stronger than any suggesting it is necessarily or even usually a sign of psychiatric illness (Hallgren, 1957; Kanner, 1960; Kolvin *et al.*, 1970; Shaffer, 1973; Werry, 1967, 1972). While in this group of boys there was a higher than expected frequency of mental retardation and psychiatric conditions, the majority of the children were adjudged normal though the diagnostician (J.W.) was not blind and his reliability as a diagnostician not yet adequately demonstrated.

It is possible that enuretics differ in their response to antidepressants from normal children because of some physiological difference but it seems more parsimonious to assume until proven otherwise, that the effects described here are characteristic of *all* children including normals. The deduction from these results that enuresis must be a depressive equivalent seems less credible than the hypothesis that antidepressant and stimulant type drugs have similar effects in all children—a majority will show evidence of well-being and relaxation while a minority will show effects of dysphoria or irritability (Goodman and Gillman, 1970; Weiss and Laties, 1962). The findings also suggest that antidepressants may well have a qualitatively (but not quantitatively) similar action in normal and depressed persons, children and adults (Angst and Theobald, 1970) and the notion that their action is somehow different in non-depressed persons or children, like the entrenched but probably incorrect notion of a paradoxical action of stimulants in hyperkinetic children (Conners, 1972; Werry and Sprague, 1974) may have to be laid to rest. For methodological reasons outlined above, it is important to stress, however, that these findings are only tentative and need replication. They do seem interesting enough to warrant further study.

It is of interest to note that the most significant side effects of placebo was negative behaviour change. This is similar to the findings of others (e.g. Rapoport *et al.*, 1974) and it seems that irritability is as likely to be due to disappointment at lack of expected improvement by the parent as a true drug effect.

This study did not confirm the observation made by Kardash, Hillman and Werry (1968) of a drug order or hangover effect of persistence of therapeutic effect into the placebo period when placebo is given after imipramine. The failure to find this drug order effect could be due to the smaller number of subjects in the present study.

This study has also affirmed that while far from perfect, the placebo probably still creates enough confusion to make it a useful device in clinical trials (Werry and Sprague, 1974).

Two further points need to be made. The first is as we have argued elsewhere (Sprague and Werry, 1971, 1974; Werry and Sprague, 1974) that the use of the open ended system of dosage to clinical trials, while necessary to establish the therapeutic value of a new drug, has led to the acceptance of dosage levels which are probably excessive for a significant number of (but by no means all) children. The current study shows that even in a dose of 50 mg once a day, imipramine has quite a detectable effect, yet this is well below the kind of doses being used for psychiatric purposes in children (Gittelman-Klein and Klein, 1973; Rapoport *et al.*, 1974; Waizer *et al.*, 1974) and should encourage the incorporation of dosage as an independent variable in future studies of this drug, to ensure that currently accepted dosage levels are really necessary.

Finally, while there has been much dispute about the ethics of giving stimulants to children, there has been almost no discussion of the ethics of giving antidepressants to enuretic children. In New Zealand at least, at any given time, there would be far more children receiving antidepressants for enuresis than there would be hyperkinetic children receiving stimulants. It was quite striking in this presumably normal population how often mothers volunteered the information of behavioural improvement but when challenged, said that indeed the child was normal but on medication he was supernormal. One or two more thoughtful mothers did not perceive this supernormality as desirable but the majority liked it. The possibility exists that some normal children may be being kept on this medication for reasons of behavioural control as much as for enuresis. In the end, enuresis is a benign self-limiting condition and the risk of increasing family expectations of a child must now be considered as one of the side effects of treatment. The other side of the coin, of course, is that since a few children in this study improved in wetting but became miserable, some children are being kept on antidepressants for control of enuresis at the cost of some suffering. There does seem, however, little reason to object to the use of antidepressants over a short period of say two to three months with proper medical supervision which must include recognition of possible psychotropic action and its effect on child and family as a social system. Also needing careful surveillance with imipramine, are possible growth suppressant effects since this is the third study after those by Rapoport *et al.* (1974) and Waizer *et al.* (1974) to report weight loss similar to that observed with stimulants (Safer *et al.*, 1972).

SUMMARY

Imipramine was given in a single nocturnal dose of 50 mg to 24 mostly psychiatrically normal, enuretic boys for three weeks in a double-blind, placebo-controlled, crossover trial to determine what effects the drug was having on systems other than the urinary tract. Behavioural changes, mostly of a positive kind, slight weight loss, tachycardia, raised diastolic blood pressure and cognitive changes occurred, suggesting that the effect of the drug in children is analogous to that of the stimulants, at least over a three week period. This would also suggest that the effect of anti-

depressants in normal subjects is no different from that in depressed patients, though the findings of this study require replication.

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THE EFFECTS OF AN AGGRESSIVE FILM MODEL ON SOCIAL INTERACTION IN GROUPS OF MIDDLE-CLASS AND WORKING-CLASS BOYS

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INTRODUCTION

BANDURA *et al.* (1961, 1963) and Mussen and Rutherford (1961) have shown that young children will imitate the aggressive behaviour of filmed models in play. These effects are long-lasting, and imitation will still occur, even if the opportunity does not arise for some considerable time after seeing the film (Kniveton, 1973). Such findings have been widely presumed to illuminate the effects of filmed violence on the behaviour of children. A major criticism of these experiments is that the indices of aggression are not real. Extrapolation from popping a balloon, or striking an inflatable doll to interpersonal aggressive behaviour is not necessarily valid. A further weakness of these experiments lies in their neglect of individual differences. Newson and Newson (1968) indicated that acceptance of physical aggression varies with social class. Working-class mothers for example, sanction "hitting back" more than do middle-class mothers. Such differences have been detailed by many researchers (Lynn and Gordon, 1962; Sears *et al.*, 1957) and may well influence the response to aggressive models. Kniveton and Stephenson (1972), however, did not find any overall differences in the amount of imitation of Bozodoll-directed "aggression" between working and middle class children, when subjects had previously played in the situation depicted in the film.

There is evidence which supports the view that aggressive programmes on television can influence children's social behaviour. Correlational material (McIntyre and Teevan, 1972) shows a reliable association between exposure to aggressive television and various measures of aggression among children and adolescents, but a causal effect is not demonstrated. Indeed, Pfuhl (1970) suggests that delinquents will be only too eager to deflect blame from themselves on to the shoulders of the film producers.

Some recent experimental work has attempted to come to grips with the problems of filmed material and aggressive behaviour in interpersonal situations, but not in relation to imitation. In some experiments (Leifer and Roberts, 1972), children are exposed to aggressive films and then asked which of various alternate acts they would commit against another child. The films were of an aggressive choice although it is clear that what the child *says* he would do will not necessarily predict what he actually *would* do. In other experiments (Leibert and Baron, 1972) children were encouraged, after exposure to an aggressive film, to take part in a

task which supposedly allowed them to administer punishment in the form of an electric shock to another child in a separate room. The results of this experiment suggest that seeing the film lowers the threshold of resistance to aggression. These studies certainly suggest that television violence may affect social behaviour, but they do not take into account the social and moral constraints which he can operate in a real face-to-face encounter, and they do not examine the suggestion that children learn specific aggressive acts from films. Stein and Friedrich (1972) have conducted one of the few field studies showing a strong link between watching aggressive films and a heightening of aggressive behaviour. This encourages further laboratory work designed to increase our understanding of the processes involved.

In previous experiments on doll directed aggression (Kniveton and Stephenson, 1970) the authors gave some children the opportunity to play in the experimental situation before seeing the film (pre-experience). These children were influenced less by the aggressive model than were those without pre-experience. It was suggested that pre-experience had the effect of inoculating the children against the effects of the film. In later experiments (Kniveton and Stephenson, 1972) there was a social class interaction. Working-class children failed to benefit from pre-experience except when the length of pre-experience time was increased considerably. There was some evidence to suggest that pre-experience effectively reduces imitation behaviour because the child may develop its own interests in the situation; these interests subsequently prevail against the alternative suggestions in the filmed material.

The aim of the present experiment was to investigate the effects on *inter-personal* behaviour of a film portraying a violent relationship between two children. In addition, the effects of pre-experience both of the situation and of a relationship with one's partners, are also evaluated. Both forms of pre-experience might lead to preferred patterns of behaviour being established which could be expected to prevail against imitation of the activities portrayed in the film. Hence, there were four experimental groups. In two, the children had an opportunity to play in the experimental situation before seeing the film. In one of them, the other child was one they would play with after seeing the film; thus, the pre-experience was both situational and interpersonal. In the second case, the pre-film session was with a different child. In this instance pre-experience was of the situation, but not interpersonal. The other two groups had no experience of the situation before seeing the film. In one case the children who played together after seeing the film were friends at school—"interpersonal" experience but not "situational" experience—and in the other the children were strangers—having neither situational nor interpersonal experience. Ideally the "friends" (A2 p. 303) condition would have been replaced with "controlled pre-experience" condition in which the unacquainted children had played together in a different setting. For practical reasons this condition was not fulfilled.

Whilst the concern of this experiment is with aggressive imitation, and the film used shows children fighting, it was anticipated that the incidence of physically aggressive behaviour in the experimental situation would be limited. Disapproval of physical violence is widespread and in a strange situation it is likely to be inhibited. It was anticipated that the effect of the film would be for the most part to increase socially approved forms of aggression such as criticism, attempts to influence

the behaviour of the other, derogatory comments and general competitiveness. It was hypothesised that:

- (a) Children with experience both of the situation and of their partner would imitate the film less and display less aggression than would inexperienced children;
- (b) Experience of one's partner would, by itself, diminish imitation and aggression more than would experience of the situation alone;
- (c) Working-class children would be less influenced by pre-experience than middle-class children; and
- (d) Social class would not affect the overall level of aggression.

Hypothesis (d) is based on previous findings of children's behaviour in experimental situations (Kniveton and Stephenson, 1972) rather than mother's reports of children's behaviour (Newson and Newson, 1968). The second hypothesis was seen largely to follow from the fact that the film itself focuses on the quality of the relationship between the two children portrayed in the film, making that relationship more salient than the particular circumstances in which it finds expression.

Following the results of previous experiments, pairs of both middle-class children and working-class children were included in each of the above experimental groups.

METHOD

Subjects

The subjects were 96 boys enrolled in five primary schools in Nottingham. They ranged in age from 60 to 78 months with a mean age of 70.3 months. One male experimenter conducted the study for all 96 children. According to the Registrar General's (1960) classification of the fathers' occupations there were 16 boys in Class I, 28 in Class II, 4 in Class III non-manual (Middle-class), 24 in Class II manual and 24 in Class IV (Working-class).

Experimental play situation

The experimental room was the Social Psychology Laboratory in the Psychology Department of the University of Nottingham. The room contained a carpet on which a Matchbox electric motorway racing set was laid out in a figure eight. There was only one hand operated controller. This limited racing to one track only. Four cars were distributed on the track. Whilst the children were in the experimental room the observers were positioned on the other side of the one-way mirror screen which provided an uninterrupted view of the room. The children had been shown the nature of the screen before the experiment began.

Children of similar social class were placed together in the following experimental design:

Situational experience

		Yes	No
Interpersonal Pre-experience	Yes	A1 Played previously in situation with <i>same</i> previously unacquainted child	A2 Friends without experience of this situation
		B1 Played previously in situation with <i>different</i> unacquainted child	B2 Meeting both situation and partner for the first time
	No		

Procedure

Apart from those in Group A2, children in each experimental pair were brought to the Department from their separate schools. On arrival at the Department they were taken to different rooms and not allowed to meet those from the other school except as partners in the actual experiment. In

group A2 the pairs of children came from the same class in the same school and were selected on the report of their class teacher that they played together most of the time. This was checked by asking each child for the names of his best friends. The procedure for the four groups is portrayed below:

	Day 1	Day 2
A1	Pre-experience session with unacquainted child	See film Experimental session with same child
B1	Pre-experience session with unacquainted child	See film Experimental session with different (unacquainted) child
A2		See film Experimental session with friend
B2		See film Experimental session with unacquainted child

Each session lasted for 14 min. In every instance, including the pre-experience sessions, the children were taken to the experimental room and told they could play with the toys whilst the experimenter worked in the next room. The children were then permitted to enter the room. One (randomly selected) child was prevented from entering immediately by the experimenter asking him either when his birthday was, or whether his mother knew he was coming to the University. The other child, therefore, entered the experimental room slightly before the delayed child. Both children were then left in the experimental room for a period of 7 min. In the room there was the Matchbox racing track, with four cars and one controller. Although only one child at a time could control the cars, the situation offered many alternative strategies for play. The fact that there were four cars meant that the children could play with the cars whether they had the controller or not. The child without the controller could quite easily play normally with the cars on the track that was not "live", or take the cars and play with them in another part of the room; or he could vary the number of cars in play on the working track. Neither child was given any special responsibility, or authority in the situation, so there was also the strong possibility that there would be competition for the controller. No instructions were given to the children about the duration of play, nor were they told that withdrawal from the situation was a possibility. After 7 min, the child who was allowed to enter the experimental room first was called to the door by the experimenter and asked either "when his birthday was" or "whether his mother knew he was coming to the University". He was then allowed to return to the racing track. This procedure was included to prevent a naturally dominant child entering the situation first and playing a dominant role throughout the experiment, perhaps by retaining the controller for the duration of the session. As it is, both children at some stage had equal opportunities to take possession of the controller without having to wrest it from the other child.

Children in Groups A1 and B1 (situational pre-experience conditions) were brought to the experimental room and allowed to play as described above. The following day they were shown the experimental film and then were allowed to play again as described. In one case (A1) the two children who played together on the first occasion also played together on the second. In Group B1, partners were different in the second session. In Group A2, the two subjects who were friends were shown the film and then allowed into the experimental room for one standard session only. The same procedure was adopted for the unacquainted, naïve subjects in Group B2.

The film used was 16 mm colour and lasted $4\frac{1}{2}$ min. It featured two boys playing with a Matchbox motorway racing set with only one controller. Two boys, one 86 months old and the other 82 months old, played the roles, and a series of scenes included two boys fighting for control of the car. Between fights one boy was shown operating the car, the other was seen to be watching him and expressing extreme displeasure verbally and gesturally.

Response measures

For purposes of data analysis, the relationship between the two subjects was characterised variously throughout the experimental sessions as Co-operative, Competitive or Unconcerned. The categories were thought to reflect adequately the principal orientation of the children towards the situation facing them. They are mutually exclusive, and are defined in terms of particular combinations of individual behaviour displayed by the children. There are six sub-categories as follows:

1. Co-operative

This includes all occasions when the two children played together without overt competition between them. Almost inevitably, one child had possession of the controller at any one time, leaving the other child at a disadvantage. However, bearing this in mind two types of co-operative behaviour were included.

(a) *Equal*. For this type to be recorded, it was required that the child without the controller assert himself by actively playing with the toys, i.e. picking up cars, moving the transformer, adjusting the track, making suggestions.

(b) *Dominant/submissive*. In this type of play when one child has charge of the controller the other child is relatively inactive, i.e. sitting watching the cars or looking at the other child. However, he does need to be concentrating on the first child's play.

2. Competitive

(a) *Non-violent*. This includes all overt conflict, e.g. when one child has the controller and the other either asks to play or is physically attempting to acquire the controller; squabbling about the use of a car, layout of track, etc. Also included are any other disagreements (e.g. about whether or not they should leave the experimental situation).

(b) *Competitive fighting*. This includes any competitive behaviour where physical attempts to get the controller or cars, etc. go beyond a simple snatch (e.g. pulling the other child to the floor).

3. Unconcerned

(a) *Indifferent*. This is revealed as lack of interest in the play of the other child, or of the opportunities for play, e.g. looking or walking around the room, or sitting by the track, but obviously not watching the game (tapping the floor, picking his fingers, etc.). This is scored when one or both children show indifference.

(b) *Withdrawal*. This is recorded whenever a child tries to leave the experimental situation (i.e. walks to door, or stays outside it).

Each subject was observed during the play periods by one observer. The two observers acted independently and each simply wrote down in her own words what one of the children was doing at any one moment. She wrote on a paper strip which moved at a constant speed of $\frac{1}{4}$ in./sec on a Rustrak recorder. Later the amount of time spent on each activity was calculated by measuring the amount of paper devoted to each. This was done by a naïve assistant, in terms of the response categories described above.

In order to classify the social relationships of the subjects in the above manner, the behaviour of each subject was firstly examined independently, and again in conjunction with that of the other member of the pair.

Individual behaviour was examined first according to whether the child possessed or did not possess the controller. In addition, the *controller's* attitude towards the other child was at any one time characterised as either:

(A) assertive or

(B) submissive

(A) Assertive behaviour was recorded when the "controller's" play was in no way directed by the other child. He did not obey instructions, or in any way change his play strategy at the instruction of the other child.

(B) Submissive behaviour was recorded when the "controller" succumbed to the instructions of the other child, changing his behaviour to comply with instructions.

If the child *did not have the controller* his behaviour was characterised either as:

(a1 + a2) Assertive

(b) Submissive

(c) Indifferent, or

(d) Withdrawal

(a1) Assertive behaviour included any attempt to influence the direction of the game, short of attempting to take the controller.

(a2) Assertive behaviour included all attempts to take over the controller, including fighting.

(b) Submissive behaviour included looking passively at the toys or the other child, or accepting and playing with the toys in a manner dictated by the other child.

(c) Indifferent behaviour described all activities such as looking round the room and generally playing in a manner unrelated to the other child.

(d) Withdrawal behaviour was recorded when the child left the social situation, e.g. walked out of the room.

(e) Fighting was recorded as a sub-category of (a2), and used separately for certain analyses.

A separate note was made of any behaviour which was imitative of the film, other than fighting.

Fighting behaviour included any actions which involved the two children touching each other in an unfriendly manner. In the film the specific acts were: pulling the other over backwards; holding the other round the neck and rolling over on the ground; pulling the other away from the controller by the legs; pulling the other away from the controller by the legs and then jumping on him; sitting and jumping on the other; pushing the other away from the controller by sliding towards him and pushing with the feet. Incidents which did not involve fighting included: putting a hand across the track and raising it before a car arrived; sticking out the tongue at the other child in a sneering manner and holding hands out from the ears with fingers moving.

A randomly selected set of sessions were filmed through the one-way vision screen, using 8 mm cine film, and these were then analysed blind by the experimenter.

The correlation for categories between the observer's and the experimenter's ratings was in each case above 0.82. Re-analysis of the observer's records by the assistant (who was not aware of the fact that she was scoring records twice over) showed a correlation on times engaged in each type of behaviour of above 0.91 in each case. The observers did not know the subject's group assignments, or which play session they were observing.

SUMMARY OF BEHAVIOUR CLASSIFICATION USED IN THE ANALYSIS

With controller

A Assertive

S Submissive

Without controller

a1 Assertive

a2 Assertive

s Submissive

i Indifferent

w Withdrawal

(f) Fighting

Individual classifications in combination

Controller's behaviour Other's behaviour

A

a1

Co-operative (equal)

A

a2

Competitive (non-violent)

A

(f)

Competitive (fighting)

A

s

Co-operative (D-S)

A

i

Indifferent

A

w

Withdrawal

S

a1

Co-operative (D-S)

S

a2

Competitive (non-violent)

S

(f)

Competitive (fighting)

S

s

NONE

S

i

Indifferent

S

w

Withdrawal

RESULTS

The combined behaviour of each pair of subjects in the play sessions after exposure to the film model, was examined using three-way analysis of variance, considering the three factors, Situational Pre-experience, Social Class and Acquaintance. This was done for each of the above six combined categories of behaviour.

Individual behaviour was examined for the six individual categories of behaviour, and for imitation, using a four-way analysis of variance (nested design). Factors were (1) Pre-experience, (2) Social class, (3) Acquaintance and (4) Order of entry in room.

1. Combined behaviour

Three-way analysis of variance on the six combined behavioural measures showed, as expected, a significant effect of situational pre-experience (A1 and B1 vs A2 and B2) on non-violent competitive behaviour on Day 2 $F = 4.16$, *d.f.* 1/40, $p < 0.047$). (Table 1 gives the appropriate means and standard deviations, together with the results of the appropriate analysis of variance.) Children with experience of the situation before seeing the film were less competitive than those without such experiences. Interpersonal pre-experience (A1 and A2 vs B1 and B2) unexpectedly,

TABLE 1. SHOWING MEANS AND S.D. FOR NON-VIOLENT COMPETITIVE BEHAVIOUR (COMBINED SCORES) IN sec

	Day 1				Day 2			
	Middle-class		Working-class		Middle-class		Working-class	
	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.
A1	14.60	14.00	36.30	25.30	14.01	14.66	41.33	30.13
B1	17.00	15.16	20.33	27.37	5.83	8.15	24.00	28.66
A2					36.33	22.41	85.52	75.66
B2					27.15	27.50	33.72	45.00

Analysis of variance for day 2 data

	Source	SOS	DF1	VE	F	p
Situational pre-experience	A	7301.333	1	7301.333	4.166	< 0.05
Social class	B	7752.083	1	7752.083	4.423	< 0.05
Interpersonal pre-experience	C	3234.083	1	3234.083	1.845	N/S
	AB	108.001	1	108.001	0.062	N/S
	AC	133.334	1	133.334	0.076	N/S
	BC	690.084	1	690.084	0.394	N/S
	ABC	133.332	1	133.332	0.076	N/S
	Within	70109.667	40	1752.742		

had no such effect on competitive behaviour ($F = 1.84$, *d.f.* 1/40). Indeed, as Fig. 1 clearly shows, the results tend consistently in the opposite direction in both social class groups. No other combined measures were significantly affected by pre-experience of either kind. In particular, violent fighting (behaviour type [f]) was an extremely rare occurrence and could not be meaningfully related to experimental conditions.

As a check that the difference in non-violent competitive behaviour was a result of seeing the film and not merely because the groups A2 and B2 were in a novel situation we used the *pre-film* session of groups A1 and B1 as a control. The difference between the *pre-film* scores of A1 and B1 and the *post-film* scores of A2 and B2 was statistically significant (Mann-Whitney $Z = 1.835$, $p < 0.04$). This indicates that the film in itself increases competitive behaviour in the absence of pre-experience.

Non-violent competitive behaviour, besides decreasing with situational pre-experience, was in addition significantly related to social class ($F = 4.42$, *d.f.* 1/40, $p < 0.041$). This effect is similar in all experimental conditions, as Fig. 1 indicates. Working-class children were more competitive, which seemingly contradicts our previous findings that working-class children are no more likely to be aggressive against Bozo than are middle-class children (Kniveton and Stephenson, 1972; Kniveton, 1972). No other significant differences emerged on the remaining five combined measures.

2. Individual behaviour

Individual analysis of assertive behaviour revealed a significant interaction between social class and Interpersonal Pre-experience (Acquaintance) ($F = 5.73$, *d.f.* 1/40, $p < 0.05$). This analysis includes the assertive behaviour of children when in possession of the controller (behaviour type A) and when without possession

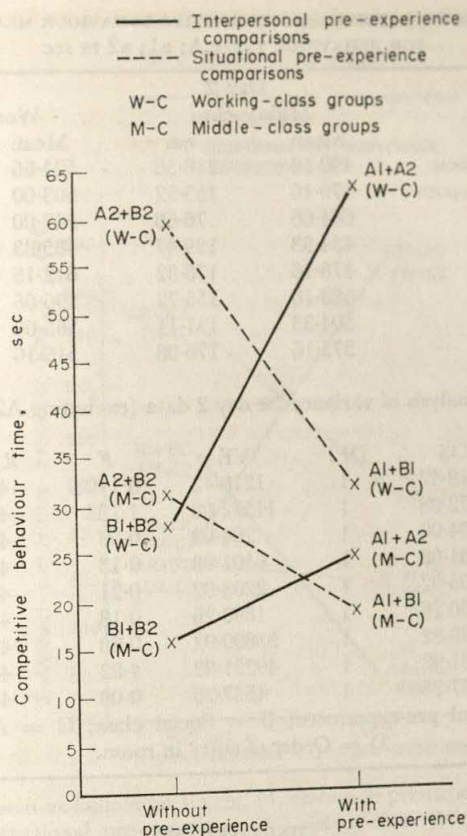


FIG. 1. Competitive behaviour (combined scores in seconds) in relation to pre-experience: portrayed separately for interpersonal and situational pre-experience in working-class (W-C) and middle-class (M-C) groups.

(behaviour types a1 and a2). Table 2 gives the relevant means and standard deviations for individual competitive behaviour. When type a2 is excluded from the analysis, the result still reaches an acceptable level of significance ($F = 4.82$, *d.f.* 1/40, $p < 0.05$). This indicates that acquainted working-class children were more assertive than acquainted middle-class, the reverse being the case for unacquainted children. Working-class children were more assertive with children they knew and middle-class children were more assertive with those they did not know. Figure 2 clearly portrays this effect. No other significant effects on competitive behaviour were discovered. A similar analysis for submissive behaviour revealed no significant trends whatsoever.

The categories indifference (i) and withdrawal (w) refer to the activities of children when not in possession of the controller. Although children varied in time spent controlling the cars, there were no significant differences between the groups in this respect. For this reason analysis of variance was performed on the raw time scores for (i) and (w) regardless of the total time spent with or without the controller. There were no significant differences between groups.

TABLE 2. SHOWING INDIVIDUAL COMPETITIVE BEHAVIOUR MEANS AND S.D.
FOR BEHAVIOUR TYPES A; a1; a2 IN sec

		Day 2			
		Middle-class		Working-class	
		Mean	s.d.	Mean	s.d.
A1	1st child in room	498.16	218.58	524.66	129.59
	2nd child in room	479.16	155.32	603.00	105.79
B1	1st child	664.66	76.68	547.00	226.29
	2nd child	434.33	139.47	485.83	155.96
A2	1st child	478.16	178.32	612.16	81.77
	2nd child	538.16	155.72	596.66	133.65
B2	1st child	504.33	151.11	565.66	183.55
	2nd child	575.16	176.86	516.16	145.75

Analysis of variance for day 2 data (excluding A2)

Source	SOS	DF1	VE	F	d.f.	p
A	1218.42	1	1218.42	0.1193	40	N/S
B	11572.08	1	11572.08	1.133	40	N/S
C	294.08	1	294.08	0.03	40	N/S
D	6501.08	1	6501.08	0.13	40	N/S
AB	2203.92	1	2203.92	0.21	40	N/S
AC	1890.26	1	1890.26	0.18	40	N/S
AD	33899.92	1	33899.92	0.68	40	N/S
BC	49231.92	1	49231.92	4.82	40	<0.05
BD	4537.26	1	4537.26	0.09	40	N/S

A = Situational pre-experience; B = Social class; C = Acquaintance;
D = Order of entry in room.

DISCUSSION

Previous studies of aggression against dolls after exposure to film models have always demonstrated a considerable effect of the film. In the present study of inter-personal aggression the effect of the film was not dramatic. Fighting was rarely imitated, although there was a significant increase in general competitiveness. This limited effect of the film in itself is an important finding, and undermines somewhat the position of recent commentators who base their alarmist conclusions largely on the results of experiments portraying doll-directed attacks (e.g. Aronson, 1972). However, the subjects were aware that their behaviour was being scrutinised; in the absence of adults, the effects would very likely have assumed larger proportions.

Principally we have shown that children who have played once in the situation portrayed in the film, before they have seen the film, are subsequently less influenced by the film than are children who meet the situation for the first time. They are less competitive; they squabble less and are generally more agreeable. This effect occurs independently of the relationship between the children—whether previously acquainted or not. This result strongly confirms the counteracting influence of pre-experience suggested by our earlier work. It is especially interesting that the effect occurs independently of social class background of the children, in view of the suggestion of an interaction between social class and pre-experience in our previous work on aggression against a Bozo doll.

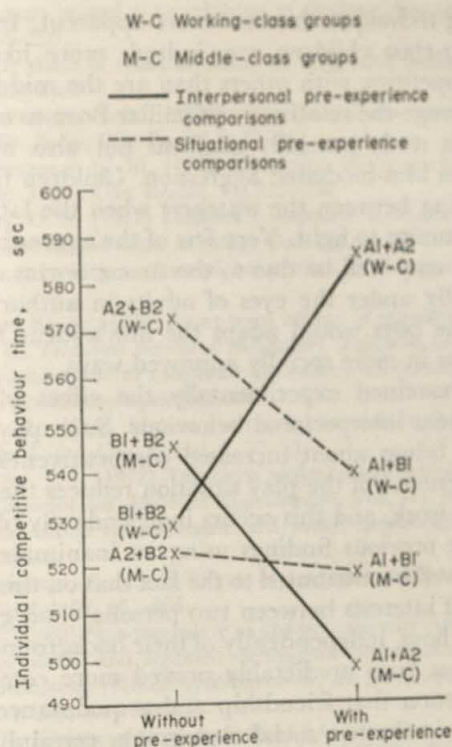


FIG. 2. Individual competitive behaviour (in sec) in relation to pre-experience; portrayed separately for interpersonal and situational pre-experience in working-class (W-C) and middle-class (M-C) groups.

The remaining hypotheses were not supported. In particular, pre-experience of the situation was a more effective suppressor of aggression than was previous acquaintance. This was certainly not expected and is difficult to explain. It is possible that children feel more at ease with children they know and that this fact makes it easier to express disagreement. This might have the effect of cancelling the predicted influence of acquaintance on the activities of the children in this situation. Acquaintance did, however, determine the effect of social class. Working-class dyads were significantly more competitive than their middle-class equivalents, but individual analyses demonstrated an interaction with acquaintance for *individual* assertive behaviour. Working-class children were more assertive and pushing with people they knew, whereas middle-class children were more demonstrative with strangers. This effect is difficult to interpret and needs replication.

This greater assertiveness of the working-class children was unexpected in view of our previous findings. It is, nevertheless, entirely consistent with results of surveys which indicate that working-class mothers tolerate their children settling disputes physically. Middle-class mothers, in contrast, are somewhat more likely to intervene in their children's disagreements in the interests of justice, (Newsom and Newsom, 1968). Perhaps in the case of interpersonal aggression proper, the effects of such

different child-rearing techniques become more apparent. In any event our results indicate that working-class children are, indeed, more likely to attempt to get their own way in competition with others than are the middle-class children, even though they do not savage the relatively unfamiliar Bozo to any greater extent.

In conclusion, this study partially confirms but also modifies the argument from previous work on film-mediated aggression. Children fighting on film do not necessarily elicit fighting between the watchers when the latter are given identical incitement and opportunity to fight. Very few of the aggressive acts portrayed were copied in detail. This may well be due to the strong norms against public displays of aggression, especially under the eyes of adults in authority. We expected and indeed, found that the boys would adapt the film's ideas to their situation, and display competitiveness in more socially approved ways.

This study has examined experimentally the effect of filmed interpersonal aggression on subsequent interpersonal behaviour. Such physical aggression is not copied in detail, but brings about increased competitiveness in boys whose aims conflict. Previous experience of the play situation reduces the impact of the film, as found in our previous work, and this occurs independently of social class, a finding which contradicts our previous findings using an inanimate doll as the object of aggression. This may well be attributed to the fact that on this occasion the situation—a genuine conflict of interests between two persons—had greater everyday social significance for all the boys, independently of their background. As if to substantiate this view, working-class boys predictably proved more competitive than middle-class boys. The suggestion that friendship and acquaintance have different interpersonal consequences in the two social class groups certainly merits further study.

SUMMARY

Forty-eight middle-class and forty-eight working-class boys in their first year at primary school were each assigned to one of the four experimental conditions. Situational pre-experience significantly reduced the amount of imitative competitive behaviour in response to seeing the film. The effect of interpersonal pre-experience varied according to the social class of the child. Acquainted middle-class children were *less* likely to be assertive; acquainted working-class children were *more* likely to be assertive than were their unacquainted fellow subjects. Working-class children were generally more competitive than the middle-class children.

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SYNCHRONIZATION OF VISUAL ATTENTION IN MOTHER-INFANT PAIRS

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TRADITIONALLY, research on social behaviour in infancy has been concentrated on fairly gross measures of the *outcome* of social interaction. More recently, there has been a growing awareness of the need to understand also the *processes* of infant social interaction (e.g. Cairns, 1972; Rosenthal, 1973). Something is known of the more obvious social signals which may be presumed to play a role in such processes, namely outputs such as smiling, crying and babbling and inputs such as voices and faces (Schaffer, 1971). Yet all this tells us little about the moment-to-moment integration of the behaviour of infant and caretaker such as one typically sees in an everyday playful interaction between a mother and her baby. In such circumstances, the actions of the two participants are far from random with respect to one another; rather, they give the impression of exhibiting a marked degree of behavioural synchrony.

With vision being the primary distance sense in humans, and the orientation of the eyes being readily detectable by others, it is not surprising that cues from visual behaviour are considered to play an important role in social interaction. Thus various studies (e.g. Cranach, 1971; Kendon, 1967) have shown that looking may serve as a highly sophisticated signal regulating the interactive behaviour of adults, and its role in the development of mother-infant synchrony has also recently come under scrutiny (Jaffe *et al.*, 1973; Robson, 1967; Stern, 1974). So far, the emphasis of this work has been exclusively on mutual gazing or "eye contact"; however, it is apparent that, particularly at a pre-verbal stage, interaction is often indirect rather than face-to-face, i.e. it takes place via features of the environment such as toys, utensils or distal surroundings. In such circumstances, monitoring by the participants of each other's focus of visual attention in the environment could play an important role in regulating the interactive process.

Such a phenomenon may well be seen most clearly when the participants find themselves in an unfamiliar situation and thus confronted by various novel and hence attention-worthy features. It was in just such a situation, namely during observations of mothers and infants brought to our laboratory, that we became aware of the extent to which mothers take note of the focus of their baby's eyes and respond to it by also looking at the same object. What follows is an attempt to substantiate and quantify this phenomenon and to consider its implications for an understanding of early interactive development.

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METHOD

Subjects were sixteen mothers and their infants. Names were obtained from the records of a local Child Welfare Clinic with a predominantly middle class catchment area. The infants fell into two age groups, Group *A* with a mean age of 24.3 weeks (range 19–27 weeks), and Group *B* with a mean of 47.6 weeks (range 45–52 weeks). Each group contained 4 males and 4 females.

Mothers were contacted by telephone and asked to participate in a programme of research into infant development. On arrival at the laboratory the mother was told that we were particularly interested in examining the behaviour of babies in a strange environment, and that during the observation session she should behave as naturally as possible, with the one constraint that she should try to keep the baby on her knee.

The observation session took place in a room 3.5 × 2.0 m. Apart from a chair for the mother, approximately centrally placed, the room contained no other furniture. A one-way window extended virtually the length of one side of the room, and from behind it a television camera was focused on the subjects. Four large, prominent, and brightly coloured toys (a ball, a dog, a teddy bear and a train) were placed near the window in such a way that one was above, one below, and one either side of the line of sight from camera to subjects. This arrangement helped make it apparent, in analysing the video record, when the subjects fixated any of the toys. Clear illumination of the subjects' faces, without undue glare or heat, was obtained by the use of a red-sensitive camera in conjunction with concealed lighting from low-powered tungsten lamps reflected off the wall below the one-way window. A digital timer, clocking 0.1 sec time units, was reflected into one corner of the camera field of view to provide a real-time reference.

The observation session began as soon as mother and baby were settled in the room and continued for six minutes (except for three cases where the session lasted only four minutes). No subjects had to be discarded because of untoward behaviour during the procedure, but subsequently one mother had to be replaced because the glasses she wore made it difficult to detect from the video recording when she looked at the toys.

Data analysis involved frame-by-frame inspection of the video recording in order to time to the nearest 0.1 sec the start and finish of each look at a toy by both mother and infant. To qualify as a look, the duration of visual fixation of a toy had to be at least 0.3 sec. Similarly, successive fixations of the same toy were treated as a single look if the break between them lasted less than 0.3 sec. This effectively prevented most blinks from causing what were intuitively single looks to be scored as multiple looks. Data on looking by mother and baby respectively were obtained from the video recordings on separate occasions, without reference to the data from the other individual. The two sets of data were then integrated into a single sequence and analysed by computer.

RESULTS

As expected, most infants spent a considerable part of the session visually fixating the various toys (mean of 42 per cent of session time) and much of the remainder was spent looking elsewhere in the room. In general, the more a baby looked at the toys the more the mother did so too ($\rho = 0.69$, $p < 0.01$). Most mothers spent much of the time looking at the baby and each mother looked at the toys less than did her infant. However, when both partners simultaneously paid attention to the toys it was more often than not the same toy that they would focus on. As we see from Table 1, in all but three mother–infant pairs, the time spent in jointly attending to the same toy considerably exceeded the time when different toys were fixated. This is particularly striking when one considers that out of the sixteen possible combinations of mother and baby looking at one or another of the four toys, there are only four in which they could be looking at the same toy.

The following procedure was adopted to estimate more objectively how far this tendency to joint attention by mother and baby exceeded chance level, and to

TABLE 1. TOTAL TIME SPENT BY MOTHER AND INFANT LOOKING AT TOYS AND TIME SPENT LOOKING SIMULTANEOUSLY AT SAME TOY AS OPPOSED TO DIFFERENT TOYS

Mother-infant pairs	Age of infant (weeks)	Sex of infant	Total time (sec) looking at toys		Total time (sec) looking simultaneously at:	
			Mother	Infant	Same toy	Different toys
A1	19	F	51.5	103.1	12.3	3.2
A2	21	F	45.2	119.8	9.5	12.2
A3	24	F	11.7	52.2	4.0	0.0
A4	25	M	21.8	87.5	5.6	1.0
A5	26	F	19.5	214.2	13.9	1.7
A6	26	M	36.6	169.3	16.1	5.6
A7	27	M	83.8	175.7	19.0	13.8
A8	27	M	95.7	179.0	38.6	18.2
B1*	45	M	17.6	94.8	8.1	0.9
B2	46	F	102.5	168.5	21.6	31.3
B3*	46	M	5.2	52.4	1.9	0.0
B4	46	F	62.2	205.8	32.5	12.6
B5*	46	M	57.3	138.7	25.8	13.4
B6	50	M	112.5	265.3	68.6	28.0
B7	50	F	49.0	160.5	24.1	14.0
B8	52	F	30.0	85.9	5.4	8.2

*The session lasted 6 min in all cases except those marked with an asterisk, where it lasted 4 min.

ascertain how this was brought about. At any one point in time during the sequence, the visual activity of either the mother or the infant can be defined as one of five alternatives, namely looking at one or another of the four toys or looking at none of them. Counts were made of the frequencies with which the infant was already engaged in each of these activities at the points in time when the mother commenced to look at a toy. These frequencies were entered in a contingency matrix with four columns corresponding to the toy toward which the mother began to look, and five rows corresponding to the infant's ongoing visual activity in terms of the five alternatives defined above. The resulting matrix of frequencies from one mother-infant pair is shown in Table 2 (a). The four cells on the descending diagonal contain the frequencies with which the mother began to look at the same toy as her infant was already looking at. If the sum of these four cells significantly exceeds that expected by chance, then it is likely that the mother was following the direction of her baby's gaze. A similar matrix was obtained by examining which of the five visual activities the mother was engaged in each time the infant began to look at a toy. The diagonal cells of this second matrix (Table 2b) reflect how often an infant commenced to look toward the same toy that the mother was already looking at, that is, how often he followed the direction of his mother's gaze.

Statistical analysis to ascertain whether one participant followed the direction of gaze of the other more often than might be expected by chance was done separately

TABLE 2. DATA FROM MOTHER-INFANT PAIR B4. (a) IDENTITY OF TOY TOWARDS WHICH MOTHER STARTED TO LOOK AS RELATED TO TOY INFANT ALREADY LOOKING AT. (b) IDENTITY OF TOY TOWARDS WHICH INFANT STARTED TO LOOK AS RELATED TO TOY MOTHER ALREADY LOOKING AT

(a)					(b)				
Infant looking at:	Mother started looking at:				Mother looking at:	Infant started looking at:			
	Toy 1	Toy 2	Toy 3	Toy 4		Toy 1	Toy 2	Toy 3	Toy 4
Toy 1	9	0	1	0	Toy 1	0	4	2	0
Toy 2	3	34	4	1	Toy 2	0	3	3	2
Toy 3	0	0	4	0	Toy 3	0	5	1	0
Toy 4	0	0	0	7	Toy 4	0	2	0	0
None	4	5	6	4	None	22	41	4	20

Boxed cells show frequency with which one individual visually followed the direction of gaze of the other.

for each mother-infant pair, thereby providing an assessment of the consistency of the effect across subjects. Significance levels were obtained by the following method. The probability of each possible arrangement of cell frequencies in a contingency table with fixed marginal totals can be calculated using a formula which is a simple extension of that for Fisher's Exact Test for 2×2 tables (Freeman and Halton,

TABLE 3. AMOUNT OF VISUAL FOLLOWING BY INFANT AND BY MOTHER

Mother-infant pairs	Total number of infant's looks	Number following mother's look	Total number of mother's looks	Number following infant's look
A1	61	6**	44	11***
A2	79	3	41	7
A3	26	0	16	6**
A4	57	2	23	9***
A5	109	1	18	14***
A6	61	1	37	15***
A7	79	3	52	18***
A8	69	3	117	43***
B1	45	2	24	12***
B2	69	6	74	21***
B3	40	1	8	2
B4	109	4	82	54***
B5	51	8	49	27***
B6	94	13	99	48***
B7	101	6	16	4*
B8	72	0	32	10***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

1951). Summing the probabilities of all such arrangements in which the sum of the four cells on the diagonal equal or exceed that observed gives exact probabilities for the hypothesis that the sum of the four cells on the diagonal are greater than would be expected by chance. In five instances the analysis was performed on a sub-matrix of fifty observations randomly sampled from the complete matrix which was so large as to make full computation impractical. The resulting significance levels are shown in Table 3.

The data indicate that in all but two of the 16 cases the mother showed a significant tendency to follow her infant's gaze towards particular toys. In one case only there was a tendency for the infant to follow the mother's gaze. As is apparent from Table 3, the conclusion that the mother's looking behaviour was significantly determined by that of the infant but that infants showed little equivalent tendency to be influenced by the mother's visual behaviour is equally valid for both age groups.

DISCUSSION

The data thus make it clear that the visual responses of mother and infant are not independent of one another. Instead, they demonstrate the existence of a phenomenon of *visual co-orientation*, defined as a tendency for the visual fixations of the two participants to be focused on the same object at the same time. As the analysis shows, this is brought about because the mother allows herself to be directed by the infant's behaviour. The baby, that is, visually "takes the initiative" and the mother then follows him. Even among the older infants there was little indication, under the particular experimental conditions studied, that they used in a similar way any awareness they may possibly have had of the directive significance of the mother's gaze. The phenomenon thus emphasizes the view (Bell, 1971) that exchanges between infant and caretaker are not all caretaker-initiated; on the contrary, our findings demonstrate the directive influence that spontaneous infant behaviour can have on an adult.

Visual co-orientation involves a degree of sharing of interest between the two partners, in that mutual reference takes place to some common environmental topic, as a result of which an opportunity is provided for the interactive sequence to branch out into further sequences of referential behaviour. It was, for instance, frequently noted that a mother not only looked at the same object as her baby but that she would then elaborate upon their mutual interest by pointing to the toy, verbally labelling it and commenting upon it, and incidentally providing in this way a potential context for semantic learning. Social interaction may thus be facilitated if one (or both) of the interacting individuals can monitor the focus of the other's attention to the environment. In particular, it seems likely that, in appropriate circumstances, a mother's knowledge of the direction of her baby's gaze will provide her with information about the likely future course of the baby's behaviour which will enable her to prepare herself to react and adapt accordingly. In other words, mother-infant interaction is not merely to be conceived as a series of reactions by one individual to the actions of the other. By monitoring the baby's input as well as his output, the mother is in a position to anticipate his subsequent behaviour and

in this way achieve a higher degree of interactional synchrony than would otherwise be the case.

For visual co-orientation to take place a very fine sense of timing is required on the part of the mother. When one considers the rapidity with which an infant's looks may move from one subject to another it can be appreciated that her behaviour needs to be quite precisely attuned to that of the baby. Attention is thus drawn to the importance of temporal parameters in the relationship—an aspect of mother-infant interaction to which the work of others (e.g. Brazelton, 1974; Jaffe *et al.*, 1973; Stern, 1974) has also pointed as crucial but which tends to become apparent only by the use of microanalytic techniques such as employed here.

SUMMARY

The visual behaviour of sixteen infants and their mothers was recorded in a novel situation containing a number of salient stimuli. There was a general tendency for mother and infant to look together toward the same object rather than toward different objects. Further, this visual co-orientation was found to result from mothers following the directions of the infant's spontaneous looking behaviour. These observations indicate one way in which the mother's behaviour becomes synchronized with that of the infant.

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THE CLASSIFICATION OF CHILDHOOD PSYCHOSES BY NUMERICAL TAXONOMY

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INTRODUCTION

CHILDHOOD psychosis is a blanket term currently used to describe a multitude of disorders ranging from developmental retardation to schizophrenia. The area is at present noted for its nosological confusion; attempts at clarification and sub-classification have been unsuccessful, largely because of the difficulties in achieving agreement on diagnostic criteria and the terms implicit in them. In spite of numerous attempts at classification differentiation of specific syndromes has not, as Kanner (1971) noted in a recent historical overview, "gone far beyond a degree of controversial floundering". The confusion and controversy over previous systems of classification and nomenclature has arisen not only because of the subjective nature of the systems but also because of the immense variety shown in the symptoms and behaviour of severely disturbed children. Discussion of etiology has been greatly limited by nosological confusion and the need for fresh approaches of an objective kind is continually being stressed.

Over the past 30 yr several classifications attempting to distinguish sub-groups of psychotic children have emerged. Distinctive symptomatology formed the basis of Kanner's (1943) identification of a syndrome he called "Early Infantile Autism" (1944). It may be described as a class of childhood psychosis where the behavioural symptoms have been clearly defined and etiology is unknown. The relationship of this syndrome to other psychoses is not yet known although there have been strong arguments for its specificity (Kanner, 1958; Rimland, 1964, 1968, 1971) and fairly general acceptance of this in the literature on childhood psychoses. Classification based on observed organic factors has been proposed by Bender (1947), Goldfarb (1961) and Eisenberg (1966). However the problem with this, probably the ideal method, is the extreme difficulty in so many cases of identifying the "organic" signs. A notable feature of childhood psychoses is the frequent absence in large numbers of individual cases of any easily detectable organic signs. The comparatively primitive state of knowledge concerning nervous system pathology precludes organically based classification at this stage.

Age of onset of the psychosis has always been considered important but was not

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used as the primary basis for classification until proposed by Rutter (1967). His system which is similar to that of Anthony (1958) is based on age of onset along with clinical presentation. His work supports the assertion that infantile autism ought to be placed in a separate category from other psychotic disorders. Classification based on etiological preconceptions has been proposed by several writers including Bender (1947), Mahler (1952) and Anthony (1958); but as with others mentioned, classification is largely subjectively based.

There has been an increasing emphasis lately on recognizing the importance of objectively isolating and describing a disorder prior to etiological investigation. As a result some diagnostic instruments have been devised which attempt to describe subjects in such a way that a comparison of symptomatic behaviours is possible (Wing, 1969; Lotter, 1966; Creak, 1961; Clancy *et al.*, 1969; Rutter and Weiland, 1971; De Myer *et al.*, 1971; Rimland, 1964, 1968). Unfortunately although these instruments may be able to distinguish between psychotic and non-psychotic children, they are not reliable in differentiating between sub-groups of psychotic children. Clearly, studies are needed in which a quantitative model is applied to the problem of classification, a model which does not depend on any preconception of the nature of the groups involved. This paper reports on an attempt to apply a quantitative model to the classification of psychotic children which is based on a mathematically determined objective measure of the quality of a set of groups.

Numerical taxonomy. In recent years there has been a revival of interest in the use of multivariate analytic techniques as tools for generating or defining classes according to objective criteria. Paykel (1971) reports that multivariate cluster analytic techniques have been more successful than traditional factor analytic techniques in classifying adult patients.

Cluster analysis of data provided by one of the diagnostic systems mentioned above has yielded a number of sub-groups of psychotic children, of sufficient homogeneity to show a number of statistically significant differences on etologically important variables (Cameron, 1969; Rimland, 1971). Data from the Rimland Checklist (Rimland, 1964, 1968) was used in this study and was analysed using numerical taxonomy. A non-hierarchical method developed by Wallace and Boulton (1968) which has been successfully applied to the classification of depression in adult patients (Pilowsky, Levine, and Boulton, 1969) was the technique chosen for this study.

The aim of cluster analysis or numerical taxonomy as it is often called, may be stated as follows. Given a set of S subjects (e.g. patients) to be classified, and for each, a set of D measurements (usually called attributes); to determine, from the $S \times D$ attribute values alone, a set of T classes, such that all the subjects within each class may be treated as equivalent. That is, when the individuals in one class are being discussed the same generalizations apply to all of them. It is well known that different methods applied to the one set of data may produce widely divergent classifications (Everitt, 1972). Recently attention has been focused on comparisons between different methods (e.g. Jardine and Sibson, 1971; Williams, Clifford and Lance, 1971; Gross, 1972; Cunningham and Ogilvie, 1972), but no method is widely accepted as being the best and many remain in current use.

The method chosen for the present study is that of Wallace and Boulton (1968). This method uses as a criterion of the goodness of the classification, a measure derived from information theory, called the information measure. The program SNOB (Boulton and Wallace, 1970) attempts to find, for a given data set, that classification which optimizes the information measure criterion. Both non-hierarchical and hierarchical versions of SNOB are available, the latter being described in Boulton and Wallace (1973). The former version was used here.

SNOB has been investigated on artificial data (Boulton, 1975) and has been found to perform well. It overcomes most of the problems mentioned by Everitt (1972, 1974), especially that of dividing single group data into pseudo-groups. In fact its best feature is probably the ability to automatically determine the "correct" number of groups in the data. As SNOB operates iteratively it does have the

problem shared by many other such methods, of finding sub-optimal solutions. However, with the present study, which yielded only two classes, it is most unlikely that SNOB has not found the best solution.

Being statistically based, SNOB does make explicit assumptions about the underlying probability distribution within a class. For multi-state data, as in this study the assumption is that within each class, attribute values are uncorrelated. However, the "shape" of the class (see Ling, 1972) for all multi-state data is not restricted in any way except that two classes will only be distinguished if their shapes, as described by the probabilities of different attribute states, are in effect, significantly different.

The study reported here represents an attempt to find a solution to the problem of classification of childhood psychoses by using a method which has, in addition to the advantages described above, the feature of being independent of the investigator's preconceptions regarding sub-groups of children or the characteristics of a particular group. One of the aims was to discover if, by objective means, a group of children corresponding to those described by Kanner as cases of Early Infantile Autism, would emerge as a distinct class. Further, as will be seen, an attempt was made not only to produce a valid classification but also to isolate the factors which formed the basis of the classification. In this way it was hoped that distinct classes of psychotic children could be identified in terms of the symptoms they had in common. It is of both theoretical and practical importance that the childhood psychoses should be differentiated in a way which may prove to be etiologically significant and which may serve as a basis for rational treatment.

METHOD

Subjects. Children selected for inclusion in the sample were referred mostly from parents, and from agencies in the State of Victoria over the period from September 1969 to June 1974. These agencies included residential centres, day centres for autistic children, and state and private clinics. There were in addition 48 children from centres for autistic children in 3 other states. Inclusion in the sample was based on the following criteria:

- (1) an independent diagnosis of "autism", "childhood psychosis", "childhood schizophrenia", "early onset psychosis", "autistic tendencies", "psychotic and retarded", etc. or referral to an institution or therapy milieu specifically designed to treat such children,
- (2) no definite evidence of gross neurological signs or "brain damage" in the case history,
- (3) no evidence of major sensory handicaps,
- (4) a maximum age of 13 years at time of referral and
- (5) satisfactory completion of the diagnostic checklist by the parents, i.e. provision of required case history data.

The 162 children, 132 boys, 30 girls, ranged in age from 3½ to 13 years. The M-F ratio of 4.4-1 corresponds with that found in other studies. Estimated age of onset of the psychosis ranged from present at birth to onset after 4 years of age. One third of the children had some speech at varying levels of development; the remainder were without any communicative speech. Retardation or mental illness in the family was reported in 20 per cent of cases. Twenty-nine of the children would be classified as definite cases of Early Infantile Autism using Rimland's scoring system on the checklist data.* Estimates of intellectual ability were available for 85 cases and are presented in Table 1. They correspond to the ranges of retardation reported by other workers (Rutter, 1966; Gittelman and Birch, 1967; Lotter, 1966).

Data collection. For this study the Checklist for Behaviour Disturbed Children, Form E-2 (Rimland, 1964, 1968) was used for the collection of the case history data which provided the basis of the classification. This checklist includes items on both current behaviour and history. The revised version (Rimland, 1968) used here contains 79 multiple choice items relating to the child's physical, motor, perceptual, intellectual, language, emotional and social development, and family characteristics. It is completed by the parents and was preferred here because it was free from the clinical bias

*An "autism" score is derived on the basis of responses to each item (Rimland, 1968, 1971). Scores above 20 indicate a diagnosis of autism, 10-20, uncertain diagnosis and less than 10, definite exclusion from a diagnosis of autism.

TABLE 1

I.Q.	I.Q. measures of 85 psychotic children
	Percent of cases
Normal range	
(85+)	12%
70-85	5%
55-69	21%
< 55 or untestable	62%

inevitable in the psychiatric interview method of collecting data and because it could be administered with relative ease and simplicity to large numbers of parents of psychotic children in a fairly impersonal non-anxiety-producing way. It is of course open to criticism because the information is obtained from parents' retrospective reports which are of questionable reliability and validity. However, since diagnosis depends at least in part on retrospective information (age of onset, behaviour in infancy etc.) there is at this stage no way of circumventing parents' reports entirely.

Although the Checklist was completed by the parents in its usual form, for the purposes of taxonomic analysis certain modifications were found necessary. The amount of data was unwieldy, providing, in many cases, too many categories of response, and some of the data was not relevant for diagnostic and classificatory use. In order to overcome these problems the following modifications to the data on each checklist for each child were made:*

(1) Twelve items were omitted entirely on the grounds that:

- (a) the responses were not relevant to diagnosis, e.g. age and sex of child or
- (b) reliability was extremely doubtful, e.g. whether oxygen was given at birth or results of EEG testing (very few parents have this information) or
- (c) the item had no known relevance to a diagnosis of childhood psychosis, e.g. reports of whether the child looked attractive, or appeared intelligent as an infant, or jumped up and down when pleased (such items are not weighted by Rimland himself in his diagnostic system). This left a total of 67 items.

(2) In 25 items, categories of response were collapsed so that 2 or occasionally more categories were treated as equivalent, e.g. the item concerned with special skills was given 2 categories, special skill present or absent rather than specifying particular skills in separate categories.

Responses from the Checklist for each child were coded onto a score sheet. For every question each response alternative was treated as a state in a multistate distribution of M states. The data were recorded on punched cards as a digit from 0 to $M-1$, for input to SNOB. Missing information or "don't know" responses (coded as "9") was ignored by SNOB during classification strategies. A 9 was also used for responses to the 14 speech items of non-speaking children. The data was then analysed on a Monash University Computer Centre Burroughs B5500.

Statistical methods. A improved version of SNOB was used to produce a non-hierarchical classification of the data. For each attribute in the Checklist, SNOB produces, as output, class membership for each individual and a series of contingency tables (attribute state $\times$ class membership), one for each attribute. These contingency tables were tested with the χ^2 statistic, in an attempt to obtain the attributes which characterized each class. If expected cell frequencies were too small (Maxwell, 1961), the exact probability of the contingency table was calculated (Boulton, 1975). In order to minimize the Type I error rate (acceptance of a chance difference as real) in what amounts to multiple χ^2 testing, a 0.01 level of significance was adopted. The data were run a number of times with different starting points, which instructed SNOB to assign individuals randomly to a specified number of classes. In addition to a random startup a known set of classes, in this case Kanner's Syndrome versus non-Kanner's Syndrome individuals using Rimland's scoring system served as a starting point for SNOB.

*The modified checklist with the coding used is available on request from the authors.

RESULTS

SNOB consistently produced classifications containing only two classes. This consistency was considered to provide evidence for the validity of the classification. The "best" classification i.e. the one with the smallest information measure resulted in Class 1 containing 87 Ss and Class 2 containing 75 Ss. This classification was accepted as being the best available from the data supplied and is the one described here. The classification produced significant differences between the 2 classes on 29 of the 67 attributes. These attributes are listed in Table 2.

TABLE 2. DIFFERENTIATING SYMPTOMS

Symptom description	N in * Class 1	N in Class 2	Sig. level
1 Abnormal reaction to early sensory stimuli	37/79	19/69	0.01
2 Abnormal behaviour before 18 months of age	66/85	31/74	0.0000
3 Failure to assume anticipatory posture on being picked up	53/78	19/69	0.00000
4 Estimation of onset of abnormal behaviour before 12 months with present insight	49/84	20/73	0.0005
5 Actual recognition of onset of abnormal behaviour before 12 months	29/85	8/71	0.0003
6 Resistance to being held	61/82	9/59	0.00000
7 Failure to imitate	57/87	32/75	0.006
8 Suspected deafness	62/86	35/75	0.002
9 Deaf to some sounds but not to others	50/82	21/73	0.0001
10 Looking or walking "through" people	78/87	55/74	0.01
11 Appearing distant or "in a shell"	79/87	44/75	0.00009
12 Not cuddly	62/82	15/71	0.00000
13 Not physically pliable	57/85	27/74	0.0006
14 Indifferent to being liked, happier alone	78/86	24/74	0.00000
15 Not sensitive to criticism, nor affectionate	39/87	6/74	0.00000
16 Rarely seeing things far out of reach	60/85	34/75	0.00000
17 Lack of eye contact	81/87	32/75	0.00000
18 Aloofness, indifference, remoteness	71/85	44/70	0.006
19 Pointing and naming but poor communication	39/44	30/52	0.0002
20 Some speech but no use of "yes"	19/32	12/41	0.01
21 "Yes" signified by repetition of question	23/24	12/24	0.001
22 Pronominal reversal	20/29	6/23	0.005
23 Poor gross motor coordination	33/86	11/75	0.002
24 Atypical change from crawling to walking	57/85	31/73	0.007
25 Spinning objects	45/86	20/74	0.002
26 Head banging	58/85	34/74	0.007
27 Rhythmic or rocking activity	69/85	31/74	0.00000
28 Resistance to wearing new clothes	27/86	7/73	0.001
29 No signs of fear	36/86	18/75	0.0008

* Variation in total class numbers due to missing information on some attributes for some individuals.

All symptoms listed were found significantly more often in Class 1 Ss (at 0.01 level of significance or better). There appeared to be three main groups of related symptoms accounting for most of the differences, plus a number of other symptoms which did not so obviously belong together. The first group (Symptoms 1-5) could

be described as symptoms of early onset of the abnormal behaviour. These included estimation by the parents of the time at which the abnormal behaviour actually began and the actual signs of abnormality such as over- or under-reaction to sensory stimuli, and a failure to assume an anticipatory posture when being picked up as an infant. The second group (Symptoms 6-18) contained a large number of items indicating withdrawal, resistance to, or indifference to people. Dislike of physical contact was shown in resistance to being held, or not being pliable, and withdrawal symptoms included looking or walking through people, appearing to be remote and aloof and preferring to be alone. Also included in this group might be symptoms which are not so obviously related but appear to be part of the same pattern of withdrawal behaviour i.e. failure to imitate, appearance of deafness, selective response to sounds, lack of eye contact and rarely responding to objects out of immediate focus. These symptoms were characteristic of Class 1 children.

The third group of symptoms were those indicating impaired ability to communicate (Symptoms 19-22). Only about half the sample showed any signs of communicative attempts and only a third had used speech. Within this group poor communication, inability or refusal to use the word "Yes", and pronomial reversal were significantly more common in Class 1. Another group, head banging, rocking, spinning of objects, below average gross motor coordination, and lack of fear responses may be loosely regarded as "perceptual motor" abnormalities which might be indicative of underlying neurological impairment. Certainly symptoms 27, 26 and 25 (rocking, head-banging and spinning) have been regarded by some, as forms of sensory stimulation or as responses to a perceptual, neurological pathology (e.g. Ornitz and Ritvo, 1968). Poor gross motor coordination along with untypical development from crawling to walking may indicate organic involvement in Class 1. Further detailed analysis of case histories (Prior and Knox, 1975) did indicate an excess of organic signs in Class 1 children.

DISCUSSION

The two classes obtained in this taxonomic analysis were distinguished primarily in terms of time of onset (Class 1 onset before 2 years of age), and behavioural symptoms. Children with clear evidence of both early onset and autistic type behaviour and impaired relationships with people were all included in Class 1. Children with later onset and evidence of less severe impairments in relating to people were included in Class 2. Also in the latter class were some children with onset before 2 years but with evidence of more minor impairment in their relationships with people. In general the early onset children showed the core features of childhood psychosis i.e. symptoms of aloneness and withdrawal, to a much greater extent than later onset children, and were a more homogeneous group in terms of symptomatology. The greater variation in symptomatology of the later onset group (Class 2) could no doubt be ascribed to the fact that in the majority of cases some "normal" development had taken place before the onset of the disorder. The most typical behavioural symptoms of our Class 1 correspond closely to those reported by other workers and in particular to those listed by Rutter (1967), viz. autistic relationships with people, abnormalities of speech, stereotypic behaviour, abnormalities

in response to sensory stimuli; and abnormal fears. It is also notable that lack of eye contact or "gaze avoidance" which was the most discriminating attribute in this classification was also found by Kolvin *et al.* (1971) to be the best discriminator between groups of early and late onset psychotic children. Their late onset group however contained children with a considerably later onset than that of our Class 2 although many of the findings are similar.

This classification provides support for the age of onset based systems of classification of Rutter and others. Our Class 1 would correspond to Rutter's (1967) early-onset group which he suggested might best be classified with Kanner's Syndrome children. Our Class 1 included all those children considered classical cases of Kanner's Syndrome (according to their score on the E-2) plus others with similar symptomatology but who would be outside a pure Kanner's Syndrome class as defined by the Rimland method. Most of these children were considered abnormal before the age of 2 yr and more than three-quarters of them were abnormal before 18 months of age. This does not necessarily mean that onset alone is the crucial differentiating feature (since there were children with early onset in Class 2), but that the combination of this feature with signs of withdrawal and perceptual and communication abnormalities characterizes Class 1. The early onset factor could then be one important explanation for the symptomatological differences, with the early onset cases being the most severely affected. The concept of "critical" period in normal development may be significant in distinguishing between the progress of the two groups. Rutter (1972) has made a similar point in accounting for the differences between autism and childhood schizophrenia. Possibly the later onset class may be similar to the proposed disintegrative psychosis category in the WHO tri-axial classification of childhood mental disorders (Rutter *et al.*, 1969).

SNOB considered that it was "better", i.e. the classification was improved, to group Kanner's syndrome children with others in Class 1 than to accept them as a separate class. The alternative classification which produced a Class 1 of Kanner's Syndrome children and a Class 2 of "the rest" showed similar differentiating attributes to those resulting from the "best" classification, but there were in addition a group of six obsessive behaviour symptoms which were also significant discriminators in the classification. In fact the only major difference between classical Kanner's Syndrome children and other children in Class 1 was in the amount of obsessive behaviour, or indications of "the desire for the maintenance of sameness" (Kanner, 1943), shown by the Kanner's Syndrome children. Thus it is apparent that the only real basis for making a distinction between classical Kanner Syndrome children and other early-onset, autistic type children is on the basis of the extent of obsessional symptoms. Kanner has stated that the desire for sameness is an essential symptom for a diagnosis of early infantile autism or Kanner's Syndrome; the results here would indicate the necessity of the presence of this symptom in making a distinction between Kanner's Syndrome and early onset psychosis. Further evidence for this view has recently been presented by Prior and Macmillan (1973).

The results do not preclude the possibility of a classification on the basis of organic signs. The data used in the study do not provide any indication of the importance of organic signs since there was very little relevant information in the checklist and children with obvious organic involvement were excluded from the

sample. To explore this important factor adequately, a comprehensive neurological and EEG examination of each child, which was beyond the scope of this project, is essential. A tentative case might be made out for considering the "organic" symptoms as being important as they were more common in the early onset group. However this evidence is open to a number of different interpretations and can only be a matter for speculation at this stage.

Nor is there any evidence implicating etiological factors. Pregnancy and birth complications, prematurity, and post natal problems were rare and did not distinguish between the classes. Psychiatric problems or retardation in the family background were found in 20 per cent of cases and were equally represented in both groups. However the information available on etiological factors was extremely limited and as with organic factors a closer examination is a necessary next step. The discovery of etiological correlates would provide valuable confirmation of the validity of the syndromes arrived at through the taxonomic method. The preceding two points underlines the limitations of this study which were set by the nature of the data being used as the basis for classification. Retrospective case history material has well known disadvantages, and may, for example, account for the finding that early onset does not entirely differentiate between classes since it is difficult for parents to estimate time of onset. However it has formed the primary basis for other studies which may be compared with this one and in this case had the advantage of being collected in a uniform and systematic manner.

One of the most significant implications of the findings is the importance of the recognition of early signs of disturbance. The data has shown that abnormal responses to sensory stimuli, i.e. under- or over-reaction to lights, colours, or sounds are a feature of early onset psychosis; and that failure of the child to reach out or to prepare himself before being picked up is also a sign of disturbance. Realization by parents and family physicians that this is abnormal infant behaviour should lead to earlier diagnosis and intervention.

It is clear from the results of this study that it is possible to distinguish objectively a group of early onset, autistic type children within a more heterogeneous collection of psychotic children. These children cluster together on a number of important attributes, unlike the later onset group whose symptomatology is much more variable. The importance of such a classification will lie in its relationship to such factors as etiology, the effectiveness of therapeutic programs, and the outcome of the disorder. Although this report of a study of childhood psychoses has been confined to the attempt at classification using numerical taxonomy, further data on epidemiological factors has been obtained and may provide additional insights concerning the classification described here.

SUMMARY

A form of numerical taxonomy was used to classify a group of 162 psychotic children on the basis of case history data supplied by the parents on the Rimland diagnostic checklist. The subjects were grouped into two classes. Class 1 included children with early onset of the psychosis who showed numerous withdrawal and aloneness symptoms and impaired communication; Class 2 included subjects with

later onset whose symptoms were more heterogeneous and scattered than those in Class 1. The two classes differed significantly on 29 of the 67 attributes on which they were measured. The findings are interpreted as supporting a system of classification in childhood psychosis in terms of age of onset.

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THE CHOICE OF A SURVIVING SIBLING AS "SCAPEGOAT" IN SOME CASES OF MATERNAL BEREAVEMENT—A CASE REPORT

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THE EFFECT of the death of a child on parents and siblings has received considerable attention in the psychological literature. Cain and Cain (1964) have studied bereaved families and have described a common tendency to designate one of the other children as a replacement for the lost child. The substitute child is often and individually compared to his dead sibling and feels strongly that the definition of his own personality and the pattern of his life is precast by that of the deceased child. We have seen another mode of managing bereavement which also utilized one of the surviving children not as a replacement but as a scapegoat, an object for the displacement of parental, particularly maternal guilt. In these cases, the loss of a child mobilizes a strong need to fix blame on a surviving older sibling who is unconsciously felt to have caused the loss of his envied sibling. Many years after the initial trauma, the relationship between the mother and the scapegoat child is bitter and estranged, filled with mutual provocation, unconscious feelings of recrimination and an extreme of hostility and punishment.

A digression is in order, at this point, to review the meaning of the term "scapegoat"—a term used frequently from the early psychotherapeutic literature to the present, because of its descriptive power and emotional resonance. Overlapping with the use of the term as a word with wide colloquial meaning, is a recent usage to delineate a syndrome (Ackerman, 1971; Watzlawick, 1970). In this report, "scapegoat" refers to a syndrome as it began to be defined by Vogel and Bell (1968), and as described more recently in detail by Bermann (1973). In Semitic history, the scapegoat was the "guilt-bearer" laden with the sins of the tribe and driven out as a gesture of propitiation to an angry and vengeful deity. In Celtic history, the scapegoat or outcast assumed the debt of his kindred. Accountability for crimes against persons or property was equally shared by clan members but the penalty demanded could be displaced to one member and he could be driven out of communal life, isolated, excoriated but not killed. The Celtic oral tradition tells us of female rulers, druids and divinities but contains no reference to outcasts (Chadwick, 1964). Scapegoats in Semitic history came from the priest caste which was composed exclusively of males. "Guilt-bearers" in the psychological literature, as well as our sample, were of both sexes.

Later, in complex urban societies a subgroup was chosen as scapegoat, always

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available to receive the projections and fearful anger of the dominant group in times of social stress (Adorno *et al.*, 1950).

In 1956, Ackerman used the term descriptively to describe a similar phenomenon within the confines of the nuclear family; one member of the family, a child, was chosen as "guilt bearer" to be punished and rejected so that other family members, relieved thus of guilt and anxiety, could function with greater psychological effectiveness.

In his detailed study of a family living under the constant threat of death of the father, Bermann (1973) describes and documents in touching detail the vivid reality of scapegoating as it was practiced by this family on one of the children. He enumerated conditions that dictate a family's need for a scapegoat: (1) stress of considerable duration and magnitude and (2) demonstrated efficiency and efficacy of this defensive mode as opposed to others:

"Scapegoating can enjoy general and nonsporadic use. It permits the greatest gain to all (in the family) with minimal expenditure. It resolves the problem of ego dividedness, pent-up hostilities, and experiences of self-recrimination and guilt. One can disown unwanted aspects of the self by projecting them to the victim and then righteously attack those elements in the scapegoat . . . scapegoating permits low risk, error-free discharge of group or commonly experienced tensions . . . people do not have to fear one another or worry about surprises; procedures are automatic. Anger, by mutual consent, is oriented in one direction and is uncontested so that in moments of surprise, change, or frustration one need not sort out the situation" (pp. 162-163).

Further, he suggests that the family's problems are idiosyncratic in "intensity, character and/or context" (p. 166). It is personal, private and painful, thus necessitating the choice of an insider (a family member) rather than outsiders (the medical profession). An insider also has the advantage of constant availability. The above conditions lead inevitably to the last; the candidate for the scapegoat position must be expendable. *"It is assumed that he comes to symbolize a piece of someone else's harried or traumatic childhood, a piece of someone else's terrifying guilt, a piece of someone else's unconscious. . . . The point is the scapegoat is denied his own existence. Expendability has another connotation, that of luxury. . . . The creation of an in-system scapegoat assumes sufficient personnel or talent elsewhere in the organization to carry out basic functions—economic, child-rearing, household maintenance"* (p. 169).

I would add that children carry important psychological roles in families. There might, in addition, need to be a sufficient number of other children available to carry projections of the good aspects of the parents' selves or their hopes for the future, for scapegoating to occur.

Bermann (1973) attempts to describe a general category. I will be describing a special sub-category which differs from the general in only one aspect; when these "scapegoats" were removed from the family, no "replacement candidate" was chosen. I submit that this is because the stress was intense over a significant period of time but that it is not currently operant in the family system. It happened in the past. It is however *psychologically* operant, revived, between scapegoat child and mother whenever feelings of rejection and hostility are awakened in the latter. Although other children in the family may awaken such feelings in the mother, they do not, by their own feelings of guilt, link the current animosity to the past intense trauma and play out the complementary role.

The family pathology to be described fits Bermann's (1973) criteria in all other respects—idiosyncrasy of family problem, "expendability" of the chosen child, economy and expediency of this form of group defense. The case illustration which follows was chosen not on the basis of vividness or unusualness but rather on the basis of representativeness. The circumstances and the symptomatic behavior are so similar across cases that a presentation of some of this material at a professional meeting produced a rash of phone calls from other mental health workers who "recognized" a former patient or a client family from the case description. Needless to say, they were wrong but they provided a kind of independent confirmation of the widespread, highly recognizable, only slightly varying nature of the pathological interaction to be described.

Case description

Linda Z. was 6 yr old; the second in a sibship of 5 which included 1 older and 1 younger sister and 2 younger brothers. She was brought to the hospital by a court social worker, having become a ward of the court some months earlier when a neighbor notified authorities that Linda had been locked out of her home for several hours in near zero weather in flimsy clothing. An investigation by child welfare workers confirmed this and several other instances of rather extreme punishment related by Linda, and confirmed by her parents, relatives and teachers. Following a court hearing Linda had been placed in two foster homes. The first foster mother found her to be "a lovely child" but could not keep her because of her own family's proposed move to another state. The second foster mother found her stubborn, provocative and intractable.

In the hospital, three psychometric evaluations over 3 years confirmed that Linda's I.Q. fell within the average range. Her school performance was age and grade appropriate. Her parents were high school graduates. Her father was a foreman in an industrial plant, occasionally supplementing his income with a night job in plant protection. Her mother was a housewife. Their income, standards and style of living would be classified as lower-middle-class.

A careful reconstruction of the facts in Linda's case confirmed a mother-child interaction characterized by extremes of misbehavior and defiance on the part of the child, countered by extremes of sadistic punishment on the part of the mother. Such incidents as defecating on the rug while grinning up at her mother as she entered the livingroom, shredding of siblings' clothes and bedding, prying up floor tiles after being isolated in her room for punishment, energetic defacing of wooden furniture with a scissors were some of Linda's contributions to the hostilities.

The incident which moved the neighbor to notify the juvenile authorities represented a typical Sunday of escalating warfare. It began when Linda was "bad" in church: talking loudly, moving about, poking her sisters and brothers, giggling. Mrs. Z. decreed no Sunday dinner and isolation in her room as punishment. With quiet absorption Linda scribbled with crayon on all of the bedroom walls. Her mother presented 6-yr-old Linda with water, cleanser and an ultimatum to clean it up and to stay there until it was done. Linda throws the water at her mother and laughs and refuses. The mother tells her in a fury that she doesn't deserve a nice home and a nice family, and then puts her outside "until you can say you're sorry and that you'll be good". Linda is flimsily dressed because she has destroyed her winter coat, and her parents who have little money see no point in replacing it. Linda sits and mopes prominently around the door and windows for 4 hr, informing all who pass that she is being punished. (She could be very forlorn and wistful at such times.) It never entered her head to comply with her mother's conditions for re-entering. The mother, newly furious, lets her in after sundown and receives the court investigators the next day.

During the 3 yr Linda was in residential treatment and intensive psychotherapy her parents were also seen, but the regularity of their participation, as will be described, was highly variable. As one examines the life histories of Linda and her mother there are some indications of the cause of the warfare, the basis for their bad bargain—that one must punish and the other must be intransigent. One of Linda's younger siblings had died soon after birth as a result of a congenital defect and another had to be hospitalized for severe mental retardation. Mrs. Z. had conveyed both directly and verbally as well as indirectly that she held her specially "bad" child Linda responsible for the tragedies

involving these infants. Linda accepted this designation of herself as murderous so matter-of-factly that it was easily possible to trace extremely provocative behavior followed by extreme punishment to the vicissitudes of the medical condition of her other siblings (Cain and Fast, 1964). When a younger brother had had to be hospitalized for symptoms that might have been serious but in fact turned out to be minor, Linda began to urinate in the cooking pans of her compulsively clean mother. In another instance which occurred during her treatment period, a lapse into extremely provocative behavior ensued after her 3-yr-old sister got the measles. Linda defecated on the livingroom rug at home and refused to go to school at the hospital. Her mother asked that Linda not come home to visit for a time because she had given her sister the measles and she didn't want the other children infected. (There was an epidemic of measles at the public school her other children attended.) Linda unquestioningly accepted the blame and later expressed great guilt and anxiety to her therapist. Her aunt had told her that measles caused mental retardation and blindness in babies and Linda sadly recalled her hospitalized retarded brother.

Linda's special significance to her mother was alluded to by Mrs. Z. herself when she filled out the initial hospital admission form. Under "Reason for Referral" Mrs. Z. wrote: "I myself have a very strong feeling of rejection towards Linda because of the constant attention that was given her by my husband's family when she was very young through the age of 4. This disturbed me because Rita (Linda's 1-yr-old sister) was a very little girl and was constantly pushed off into a corner or told, 'We don't like you because we didn't see you grow up', and so on. I was a very left out child myself and still am (*sic*). This I couldn't bear to see happening to my Rita as I know the feeling of loneliness to a great extent." Mrs. Z. consistently continued to identify Linda as her own deprived, unloveable child-self. Linda was the sibling that was fat and dark of skin and hair like her mother; the others were "fair and pretty". Linda's place in the sibship is identical to her mother's.

Linda was 15 months old when her severely retarded little brother was born. Ricky cried all the time. He grew to be a "big boy" and still couldn't walk, feed himself or talk. Linda stopped walking for a period, refused to feed herself and later on, around 3 yr of age, relapsed into enuresis and soiling after her early and successful toilet training. She very firmly pressed her claim to the same favored treatment the baby was getting. Her destructive provocativeness and intransigence, however, occurred after the baby was institutionalized when she was 4. Mrs. Z. describes this period as the end of the time when Linda was overindulged by her grandparents and the beginning of "proper discipline" for her.

Linda's therapy hours revealed her early resentment at the amount of time and attention her brother claimed because of his incapacity. She formulated all of the expectable theories to explain his highly enviable prolonged infancy: he was a boy, he had a penis, Linda had had one too but she had been justly deprived of it because she was such a greedy, angry girl. Ricky was "given away" when he was 3, to Linda's considerable pleasure and much more considerable guilt. She very much felt that her oral greed was a dangerous and punishable quality. Her mother reports that beginning at age 4 and continuing to the time of referral at age 6, Linda "ate too much of everything, like you were going to take it away from her", and that then she would often vomit. This was a later reflection of her infant behavior; she was reported to have nursed greedily and then vomited. Linda's mother felt that this child had always claimed her limited resources, whether milk, food or clothing and then "wasted it". Linda saw such behavior as insurance that when she took something that was rightfully hers, it couldn't be taken away from her and given to the baby if she "chewed it up" first.

After Ricky was institutionalized, Mrs. Z. felt temporarily relieved at having the burden of her retarded child's care taken from her. But the low tolerance for stimulation noted in her psychological testing, her wish for a placid life focused on self-gratification led her rather quickly to find the other four children too much to cope with. The wish to be less encumbered mobilized old fantasies that such wishes are fulfilled, that children may be taken from her care. This fantasy induced guilt and self-hatred. Mrs. Z. typically managed such efforts by splitting them off and projecting them. When Linda was available to receive such projections, she received her mother's accusations of being hateful to her brothers and sisters with a complementary unconscious fantasy which was also historically determined. Such accusations awakened old guilt over Ricky and awakened a guilty need to be punished and extruded herself. She was highly likely to respond then to accusation with provocation. Linda's defiance would increase her mother's anger, guilt, and wish to be rid of Linda. Mrs. Z., of course, had many moments of anger at her other children but they reacted with swift

compliance to her wishes and they lacked the complementary guilty fantasy with which Linda completed and renewed her mother's sadomasochistic cycle.

This dynamic sabotaged Linda's post-hospital adjustment. Shortly after she was returned to her home, her mother found herself pregnant and began to worry that the child she was expecting might also be damaged. Mrs. Z. didn't "discover" the pregnancy until she was five months into it. She would never have considered a therapeutic abortion in any case because of her unconscious view of herself as a dangerously rejecting mother. She had, in addition to this psychological burden, considerable discomfort and medical problems that necessitated her confinement to bed for the last few months of the pregnancy. She began to find the demands of the rest of her family an intolerable burden. Her "specially bad" child, Linda, had been returned home after 3 yr with us as an inpatient—our best estimate at that time being that both parents and child had developed a healthy understanding of their impact on each other and had demonstrated it over a tranquil six-month period of gradually increasing contact with each other. Linda at first responded to her mother's difficult pregnancy with good will and with emergency reserves of helpfulness. She, 9 yr old then, and her sister Rita, 10, took care of the little children, saw to the laundry and cooking—and took considerable care of their mother too. Their father helped them only occasionally since he was working at two jobs but he conveyed his huge appreciation at how well they were doing. He would plan presents and special treats to reward them for their truly extraordinary efforts. We were pleased but also apprehensive, feeling that a normal family might show considerable strain under such pressure, let alone this extremely vulnerable family.

Linda's mother had told us she was due to deliver in February; she delivered in April. Whether the discrepancy was attributable to miscalculation, purposeful misleading or whatever is still not clear to us. In those two extra months of what seemed an interminable pregnancy, the mother's fear of bearing another damaged child, further proof of her own inner evil, escalated considerably her profound unconscious wish not to be pregnant. She began to convey that she was worried about Linda's reaction to the new baby. She told everyone who would listen, including Linda, that she was afraid Linda would want to hurt the baby, indeed might even kill the baby. Linda's reaction to this, with our support and interpretation, was confined to a very depressed withdrawal from the family's interaction. Mrs. Z. refused to have any contact with us during this period and during the crucial three months following the baby's birth. Mr. Z. brought Linda to see her therapist and continued rather sporadically in casework himself.

We hoped that Mrs. Z.'s projections would cease when the baby was born. After she delivered a normal infant in April, she suffered a moderately severe post-partum depression. She withdrew to her bedroom, her card games, and her "girl friends", leaving Linda and her sister with one more little charge to care for. Linda began to exhibit her old refusal to help or to comply with disciplinary measures. Her mother quickly slipped into the old role of scapegoating Linda. Linda appeared for her therapy appointments with bruises on her face again, non-verbal, and in deep despair. She would spend most of her therapy hours with her head down on her arms, crying silently. Through all of this period her school performance was adequate and her peer relationships age appropriate. The teacher was surprised and angered by Mrs. Z.'s phone calls in which she would detail Linda's wickedness so that the teacher would not be "taken in" by her.

Our efforts to intervene with Linda's father and mother were unsuccessful in every permutation and combination of personality and location. We received triumphant and furious reports from Mrs. Z. that Linda had torn Rita's winter coat to shreds, had "attacked" Larry, had purposely broken dishes, had kicked her in the stomach. There had been no behavior remotely resembling this for almost 2 yr. Mr. Z. had withdrawn from the family, was drinking too much too often; and was away for days at a time. Within a few weeks, we moved to take Linda from her home when she began storing knives under her mattress and announcing to her mother that "one morning you'll wake up and find all your children killed". When Linda was removed, the father and mother were easily reconciled and the mother was able to resume adequate functioning as mother and housekeeper. Linda was placed in a group home and from the day of admission to this writing her functioning has been described as "good to excellent".

Linda's mother had never permitted an examination of her feeling about the loss of her infants through death and through institutionalization. Any effort to touch upon this subject led to an avoidance of treatment. Mrs. Z. had, however, allowed herself to perceive sympathetically evidence

of Linda's sense of guilt and worthlessness. We felt that when Mrs. Z. could endure the recognition of guilt and low self-esteem in herself, she would not split it off and project it. Her ability to tolerate the psychological pain involved in this recognition allowed her to sympathize with Linda's feelings of guilt and worthlessness. Since we had hypothesized that splitting and projection was a key mechanism in the mother-daughter estrangement, we felt that when we had evidence that empathy had replaced projection, we had grounds for being optimistic about returning Linda home. We could not foresee either the pregnancy or its awesome effects.

DISCUSSION

A common hypothesis is frequently made to explain the special "scapegoat child": that he or she preserves family peace by accepting the guilt for unacceptable impulses for the whole family; that such a scapegoat serves an important emotional function in a family that uses externalization and displacement as typical ego defenses. When the scapegoat is removed or somehow escapes this role, the family chooses another member to perform this necessary psychological function. This was not the case with Linda's family nor with other similar families. These families were typical of our clinic population as a whole. They were lower-middle to middle class by occupation, education and income and sturdily middle class in value orientation, sharing a conscious commitment to the Protestant ethic and to middle-class standards for child rearing, cleanliness and general propriety. They were, as is also modal for our clinic population, caucasian, steadily employed, two-parent families. Five of the children were treated as inpatients, one as an outpatient, and one via short-term parent guidance—the last fortunately referred when the scapegoat arrangement was in *statu nascendi*. Three of the inpatient children were court referrals as child abuse cases; two have been expelled early in their school careers as unmanageable behavior problems, having generalized their home behavior to school. The single outpatient was the youngest, 5-yr-old and already displaying signs of unmanageability in kindergarten.

The families functioned much better when the special child was extruded and did not choose a replacement to serve as guilt bearer. The virulence of the relationship was highly specific—confined to one parent and one child. This suggests rather strongly that the very negative mother-child relationship so evident to all observers is not so much a contemporary guilt-avoidance arrangement which the family, particularly the mother needs so that she can function. Rather the reasons for the special relationship seem to be rooted historically in the mother's childhood together with very traumatic experiences when she later becomes a mother. Mrs. Z. was a "very left out" child herself. Another mother in her own childhood had lost a younger sibling because of serious congenital defects and had a history of severe beatings, finally being extruded from the household at 14 yr. Another mother in this group had been sent to live with grandparents at age 9. She remembers no explanation that she could present to us. Her siblings remained at home. She mentions vaguely that they were poor and that they probably hadn't enough food for her. In summary, there is objective reason for thinking that these women had reason for feeling extremely rejected in their own families of origin.

The sense of being inadequate and unloveable is vividly reawakened and magnified by a confluence of coincidences at a particularly vulnerable point in the development of an identity as wife and mother. The coincidences involved on the

one hand narcissistic pain or shame over the actual or symbolic loss of a child, and on the other hand the availability of another child who through an accident of coloring, age, place in the sibship, or style of relating evokes memory of a "bad" child self.

"Loss of child" in these cases involved death, but also involved separation by other means. In the case of Linda, a severely retarded child was institutionalized at age 3. In another case, the mother was declared immoral and unfit in a court procedure that used her advanced pregnancy, carrying our future patient, as visible proof of her sexual delinquencies. Her two older children were taken from her custody and placed for adoption under circumstances that provide a shocking (though fortunately dated) example of the intrusion of puritan righteousness into the legal system with a consequent infringement of parental rights. The charge of immorality hinged on the fact that there was doubt about the legality of the mother's marriage and divorce some years earlier. She was, however, young, poor and vulnerable to community scorn and saw our patient as the proof of her "immorality" and the living present cause of the loss of her other children.

Two mothers in this sample had lost children in crib deaths and one of a congenital disease diagnosed soon after birth. The prognosis in the latter case was that the child would die within months. The mother hoped the doctors were wrong and was plunged into grief when the infant died—on the 4th birthday of her daughter who became our patient through court referral for child abuse 4 yr later.

It is true that the mothers in this sample were particularly vulnerable to shame and guilt because of the circumstances of the loss. Other authors have described the grief and narcissistic shame that afflicts mothers who give birth to congenitally damaged children "the mourning of the child that might have been" (Olshansky, 1962). There is also a tendency in these mothers to consider themselves as deficient in their capacity for successful procreative femaleness. The birth defect seems to reflect on their sexual and human worth and their moral goodness. In the case of crib deaths also, the unpredictability and the mysterious suddenness leaves the parents psychologically groping for an "explanation" and extremely vulnerable to guilt feelings. Although the bereavements suffered by the mothers in this sample have an unusually high shame and guilt potential, we are not prepared to infer that it is causal in the scapegoat arrangement described.

There is also evidence from work with these women that they suffer from very low self-esteem and a tendency to split off from their self-perceptions aspects which they consider bad, and to project these unfavored aspects of the self to the scapegoat child. It seems that the combination of this personality configuration with the coincidence of a narcissistically damaging loss is necessary to produce the extremes of family pathology described. The projection of the bad self by the mother perhaps serves the function of forestalling a psychotic break or a severe depression. It is an emergency solution.

When the emergency grief situation is over, the relationship with the selected child does not resume its pre-emergency character, however. The psychic arrangement endures long after the situational need for it has disappeared. All of the scapegoat children were resigned to accept guilt for a range of misfortunes that extended from a burnt dinner to a measles epidemic. The mothers saw them as excessively

greedy and demanding from infancy; two of them having a historical and contemporary pattern of eating large amounts of food and vomiting. The rising crescendo of parent-child warfare characterized by stereotyped provocation and rigid sadistic punishment was extremely similar across cases.

The child has a capacity for splitting objects also. Aspects of the self are displayed differentially to those in the environment. The result is a strong split in those comprising the treatment milieu; the "good objects" seeing the lonely and frightened rejected child and the "bad objects" seeing an extremely demanding, provocative, manipulative, over-indulged and under-controlled brat—one who makes them feel ready to do anything to assert their control over her in an eerie replay of the original warfare with the mother. Both the mothers and the treatment staff must be prevented from surrendering to the unconscious demands for punishment which these children present during the course of treatment.

Linda's mother was never able to discuss with her therapist the feelings aroused by the birth of her retarded child, through the years of care to his eventual removal. Any effort to touch upon it led to cancelled appointments and an avoidance of the hospital that would last for several weeks. This was not the case with some of the other mothers. They could and would struggle to convey the pain and guilt experienced at the time when they lost their children. The fathers, who seem like bewildered and helpless bystanders when the mothers refuse or avoid the subject, are able to help when the mothers show readiness to mourn and work through their grief. They support, sympathize and recollect. Being less narcissistically and intimately involved than the mothers, they also produce, indignantly, "old wives' tales" which neighbors and relatives have related to their wives to explain sudden infant death or congenital defect, e.g. infant blindness is caused by a latent venereal disease, kidney malformations are caused by maternal smoking during pregnancy or mental retardation is a recrudescence of a strain of idiocy and degeneracy that infests the maternal family. (It is interesting to note the denigrating mythology of women obvious here. None of the "explanations" we hear implicate the male in his child's deficiency.) The working-through of the loss experience and the mutual comforting and sharing between husband and wife seemed to foreshadow a new willingness to reconsider the needs and problems of the scapegoat child; the mothers no longer felt so desperately guilty, accused and convicted.

The cases treated are not hopeless, only difficult. Mothers who react to loss as these mothers did are typically not introspective, verbal or self-observing. This does not imply that they have little capacity for psychological pain. The widely underestimated function of shame in the avoidance of therapeutic confrontation explains to a great degree their resistance to treatment. When a pathological mother-child relationship has had years to become chronic and malignant, residential treatment seems the only viable option. However, if obstetricians and pediatricians were to be made aware of this distortion of the grieving process, successful interventions might well be possible earlier in the process. For example, one set of parents in this sample were referred for psychiatric consultation a few months after the crib death of their infant son (personal communication with David Youngs, M.D., Psychiatric Consultant, Department of Obstetrics and Gynecology, The University of Michigan Medical Center). The parental interviews were characterized by considerable

bitter recrimination on the part of the father who accused the mother variously of not wanting the baby, of not caring for him as well as she might have and, most ominously, of "wrapping him too tight" and causing him to smother. The mother turned aside his attacks by saying that no one could say what caused the baby's death, no one except their 4-yr-old daughter; she was alone in the room with him the night it happened and *she* certainly wasn't overly fond of him. This mode of managing guilt and grief had already become well rooted in the mother-daughter interaction and was successfully discouraged by counseling. If it had not been, we feel confident that this little girl would have posed a problem similar to that of the other children in this group.

Experiences in group work with the parents of mentally retarded infants have taught us how much such parents can comfort each other and how much they can do to drain off the sense of shame and to mitigate the sense of an utterly personal and disgraceful tragedy. Preventive interventions after such a bereavement, whether in the form of parent groups or conjoint counseling, might well forestall the sad estrangement of bitter parent-child warfare not only in the current family but in future generations.

SUMMARY

This paper presents a description of a pathological variation of the mourning process in mothers who have suffered a narcissistically damaging psychological or actual loss of a child. A surviving sibling chosen as a displacement object for the mother's sense of guilt and self-hatred. The parent-child estrangement continues for years after the trauma with an extremity and severity that often necessitates court intervention. A case illustration is presented and a concluding suggestion that counseling by available professionals at the time of the bereavement would be both economical and effective in forestalling this variety of pathological family scapegoating.

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ANNOTATION

THE SIGNIFICANCE OF FEMININE BEHAVIOUR IN BOYS

RICHARD GREEN*

MASCULINITY and femininity in anatomical males and females span a wide range of activities and self-concepts. This paper is concerned with those anatomically normal pre-pubertal males who show dramatically atypical gender role behaviour. These are boys who strongly prefer the dress, toys, activities and companionship of girls, role-play as female in fantasy games, display feminine gestures, and state their wish to be girls. The behaviour begins at an early age, typically in the pre-kindergarten years and most commonly comes to professional attention, if at all, at about age 7. Extensive case histories of such children and their parents are available (Green, 1974).

What is the natural history of such boyhood femininity? There are three reports of evaluations in adulthood of males previously seen during childhood for feminine behaviour (Zuger, 1966; Lebovitz, 1972; Green and Money, in Green, 1974). The numbers are small (approximately 25) but the combining of the three reveals that the majority are now either homosexual, transvestic, or transsexual (a higher percentage than one would expect to find in a random sample of the population). The nature of the treatment these children received is difficult to ascertain from the reports of Zuger and Lebovitz. In the late 1950s and early 1960s, Green and Money (*op. cit.*) saw 12 boys showing much of the feminine behaviour described above. Evaluation consisted of recording descriptions of the child's behaviour, as reported by the parents and statements by the child regarding sex-typed behavioural preferences. Intervention consisted of explaining to the child the irreversibility of sex assignment for children, anatomical and physiological explanations of the differences between male and female, and indications to the parents where they had been overtly or covertly encouraging the boy's femininity. The families were seen for a few hours during this period and again periodically over the next few years on an average of about once per year. Half the sample has been lost to follow up during the ensuing 15 yr. Of the five on whom data are currently available, four appear to be primarily homosexual. None are transsexual and none are transvestic. Some speculations regarding this outcome are given below.

During recent years publications have appeared reporting attempts to alter the natural history of boyhood femininity. Clinicians, using various strategies have attempted to reorient gender-role from a primarily feminine to a primarily masculine style. One report is that of Greenson (1966) who, utilizing a modified psychoanalytic approach with one young boy, described considerable behavioural change.

Intervention has included role modelling, play behaviour and dynamic interpretation. An eclectic approach has been reported by Green, Newman and Stoller

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(1972) in which a series of boys was treated with a variety of intervention procedures, primarily that of role modelling with an adult male therapist and attempts to encourage male peer group interaction and discourage grossly feminine behaviour which had been causing the child social conflict. This was coupled with parental counselling in which an effort was made to engage the father and feminine boy in mutually enjoyable activities, discourage extensive mother-son contact promoting female identification and interrupt parental patterns seen as reinforcing marked boyhood femininity. These children too showed considerable behavioural change concurrent with intervention.

Green and Fuller (1973) then used a group treatment approach in which feminine boys were seen together with a male therapist, with encouragement of masculine behaviours and the parents were seen as a group with a male and female cotherapist. Here ways in which parents were encouraging behaviours causing their sons' conflict were stressed and attempts made to foster mutually enjoyable father-son activities. Again, behavioural change was noted.

More recently others have employed behavioural modification strategies, both in the home and in the laboratory, to reorient feminine boys' behaviour. Reekers and Lovaas (1974) systematically positively and negatively reinforced varieties of sex-typed behaviour with a boy and this produced behavioural change. Bates *et al.* (1975) used home-based "token economy" behavioural modification techniques coupled with group parental counselling as well as group treatment of feminine boys, again with "token economy" reinforcement. Both these groups report behavioural change.

These divergent approaches to the boyhood femininity syndrome all seem to produce behavioural change. Additionally, my clinical-research experience suggests that feminine boys who have not entered into any formal treatment programme, but have merely undergone a diagnostic-research evaluation have *also* shown comparable behavioural change on follow up two to three years later.

The significance of these findings may be clarified by a consideration of the nature of sexual identity and its relationship to different adult syndromes of atypical sexuality.

Sexual identity may be conceptualised as encompassing three components: (1) core-morphologic identity—an individual's earliest self-awareness of belonging to one of two categories of human beings—male or female, (2) gender-role behaviour—those behaviours which are sexually dimorphic—"masculinity" and "femininity" and (3) sexual orientation—the anatomy of one's preferred sexual partner—heterosexuality, homosexuality, and bisexuality.

The adult transsexual is atypical on all three parameters. The adult male-to-female transsexual feels himself to be a woman, behaves in a culturally feminine way and is typically attracted to same-sexed partners. In general these individuals have neither been treated nor evaluated during childhood, their behaviour having typically been dismissed as a "normal passing phase" and something they would "outgrow". The transvestite (the male with a compulsion to wear women's clothes and for whom the wearing of women's clothes elicits penile erection) generally has a core identity of being male, behaves to a degree in a feminine manner (at least when cross-dressed) and is typically attracted to other sexed partners. The trans-

vestite is a typical primarily on the second component. In approximately half of reported cases, cross dressing had begun prior to adolescence (Prince and Bentler, 1972). The homosexual male, by contrast, typically considers himself male, behaves in a masculine way but is attracted to same-sexed partners. Thus he is generally atypical on the third component only. Saghir and Robins (1973) report that of 90 adult male homosexuals, some two-thirds reported various types of "girl-type" behaviour during grade school years. Such behaviour was much more frequently recalled than by a heterosexual control group.

Which components of sexual identity are relevant when a child is brought for evaluation and possible treatment for boyhood femininity? Those behaviours which present themselves during these years and which cause the child conflict and may alarm parents are primarily the first two components. The children are rarely involved in any genital sexuality other than that typically experienced by the remainder of their peer group. These are boys who prefer to be girls and show feminine behaviour. Intervention, when attempted, concerns itself with the first two components only. The third component, not manifesting itself, is not directly considered. Children are counselled on the inability to change sex anatomically, and more typical gender-role behaviour is promoted. It may be that transsexualism and perhaps transvestism is aborted by such intervention. However, since the third component of sexual identity (sexual orientation) is not considered or treated, it may be that these children will evolve into adult homosexuals. Indeed, this has been the case of those previously feminine boys seen by Green and Money (*op. cit.*).

Why should each of the varieties of intervention described above, as well as merely evaluation without a specific treatment strategy, all result in behavioural change? Typically during the first several years of life, up to about age 7 when the feminine boy is first evaluated, the parents have not interrupted the syndrome of boyhood femininity, but have generally positively reinforced it as "cute" or dismissed it as an insignificant "passing phase". Perhaps the most significant element is the change in attitude of those parents who seek professional consultation. They are the parents who have become concerned about the boy's atypical behaviour and it may be that their concern and new attitude towards the behaviour is the primary instigator of change in the child. It should be remembered that neither adult transsexuals nor transvestites were evaluated, let alone treated, during childhood. For them the first two components of sexual identity continued to be atypical.

Thus the natural course of boyhood femininity when left unattended by parents or professional authorities may be the adult picture of transsexualism and in some cases transvestism. However, when that natural course is interrupted in the pre-adolescent years, the outcome may be a masculine homosexual adult. The degree to which the third component of sexual identity is related to the first two components may in part dictate whether the individual as an adult will be homosexual, bisexual or heterosexual. One goal of treatment intervention during pre-adolescent years is to enlarge the peer group of the very feminine boy to include males. The research of Saghir and Robins (1973) and Bieber (1962) indicates that males with a heterosocial peer group in pre-adolescent years are more typically homosexual in adult life, and those with a homosocial peer group during pre-adolescent years are more typically heterosexual as adults. Thus it may be that if the sex of the pre-

adolescent peer group is an important determining factor of adult sexual orientation, intervention which results in a feminine boy modifying his behaviour to where he receives some acceptance by the male peer group may promote the capacity for some degree of heterosexual orientation. Many other mechanisms, possibly involving endocrinological factors and other early childhood experiences may, however, be relevant. The long-term evaluation of the extensive series of children in our own study plus those being studied and treated by others will be the test of these assumptions. In the meantime, we can only speculate on the natural course of boyhood femininity.

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BOOK REVIEWS

Obedience to Authority. STANLEY MILGRAM. Tavistock Publications, 1974, pp. xvi + 224. No price given.

WHEN Solomon Asch in the 1950's published his monograph on conformity it met with a controversial reception both in scientific and lay circles. That a substantial minority of his experimental subjects (students attending a highly selective American East Coast College) should deny the evidence of their senses and agree with a false majority was, to many, both unexpected and shocking. Asch's research has become so much the stock in trade of traditional laboratory research in social psychology that the controversy surrounding its original publication is often forgotten. Now, a couple of decades later, Milgram has published an equally important monograph—this time on the topic of obedience to authority. The authority is that of the experimenter who, in the context of an experiment which purports to examine the effect of punishment (receiving an electric shock) on memory, requires his experimental subject to administer increasingly severe shocks on each successive error to another subject who, in fact, is a stooge of the experimenter. The main purpose of the experiment is to note the point in the ascending series of shocks at which the experimental subject breaks off and refuses to administer any further punishment.

Milgram discovers that approximately two-thirds of his experimental subjects (volunteers drawn from a wide cross-section of the general population) obey the experimental instructions right up to what is marked on the apparatus as the highest and lethal level of shock. Asch in his studies set out to demonstrate man's independence in the face of a false majority. His data, because they exceeded his own and other people's *a priori* expectations about the degree of conformity likely under his experimental arrangements, forced him to explore in greater detail the nature of the minority response of conforming. Milgram, in similar vein to his predecessor, set out to explore the conditions associated with disobedience to malevolent orders to inflict injury on another and ended up studying factors associated with obedience to orders. The amount of obedience was seriously underestimated by various groups of persons to whom Milgram described the experiment. This included a group of 39 psychiatrists. Amongst this latter group were some who thought that there might perhaps be a few persons of psychopathic disposition among Milgram's subjects who would proceed to the highest levels of shock. They certainly did not anticipate that some two-thirds would do so. Approximately 1000 subjects have participated in some version or other of the experiment. The failure to accurately anticipate the degree of obedience Milgram ascribes to a serious underestimation of the situational forces acting on the individual. Once an individual has entered into a role relationship with the experimenter it is easier for him to go on pressing buttons than it is to disrupt the nature of that social relationship. It is important to appreciate that the majority of Milgram's subjects subscribed to the same moral values repudiating the infliction of injury on others that the rest of us like to believe govern our moral behaviour. Milgram's research is an important contribution to any debate about the relationship between attitudes as inferred from verbal responses and actual behaviour as determined by situational pressures. Milgram believes that the major lesson to emerge this century from social psychological research is "often it is not so much the kind of person a man is as the kind of situation in which he finds himself that determines how he will act" (p. 205). Milgram's impressive programme of research is further testimony to the continuing reverberations within social psychology of the rise to power of national socialism in Hitler's Germany and of subsequent attempts by social scientists to understand how this might have come about. Milgram's research lends credence to the view expressed by Hannah Arendt that, at Eichmann's trial in Jerusalem, the prosecution's effort to depict the prisoner as a sadistic monster was fundamentally wrong and that he came closer to being an uninspired bureaucrat who simply sat at his desk and did his job. It is the banality of evil (p. 6) which Milgram would stress. This viewpoint is important in considering the vital area of overlap within psychology between the study of personality on the one hand and the analysis of social contexts on the other. Under which conditions do we make inferences about the personality "traits" necessary

to explain a person's behaviour and under which conditions do we judge that behaviour to be situationally determined? This question is central to the contemporary renaissance within experimental social psychology of Fritz Heider's theory of attribution. Milgram's empirical contribution is a timely one.

In accounting for his findings Milgram develops a cybernetic analogy and also coins the term "agentic state" to denote the condition a person is in when he sees himself as an agent for carrying out another person's wishes (p. 133). As such it stands in opposition to autonomy. In the cybernetic terminology used by Milgram the agentic state occurs when a self-regulating entity (such as a person with internalised moral codes, etc.) becomes internally modified so as to allow its functioning within a system of hierarchical control (such as a bureaucracy). It is this process of the transition from the autonomous to the agentic state that deserves systematic study.

The book is well written and can confidently be recommended to the intelligent layman as well as to the technical reader. While the programme is an experimental one, the account of the results is liberally illustrated with excerpts from the rich source of post-experimental interviews which Milgram conducted. While Milgram discusses obedience in relation to the adults who were his experimental subjects, readers of the *Journal* will wish to consider the theme from a developmental point of view. Obedience to authority, which Milgram has demonstrated to be a powerful determinant of adult behaviour, is obviously acquired in the process of socialisation. In describing the barriers and inhibitions to disobedience of authority Milgram makes the point that children are rarely taught how to disobey an authority in appropriate circumstances. Milgram's behavioural and experimental treatment of an important theme in moral education is strongly reminiscent of the pioneering work of Hartshorne and May on honesty in children. The developmental implications of Milgram's research are likely to be profound.

The original publication of Milgram's research in the learned journals gave rise to a great deal of debate about the ethics of conducting such research. The tendency to rely on deception for the manipulation of important variables—a characteristic of much research in experimental social psychology—certainly reached a high watermark in the course of this research. Milgram makes out a strong case for conducting research in this manner and his book includes an appendix on the ethics of such research. In this appendix he attempts to answer some of the points made by his ethical critics. The social relevance and importance of the topic is cited as an important justification for undertaking such research. A number of social psychologists adopt the view that deception is sometimes necessary in conducting experimental work but, if used, there is an obligation on the experimenter to "come clean" in debriefing his subjects after the experiment. Milgram certainly went some way towards meeting this obligation. His fairly elaborate de-briefing was, however, didactic rather than strictly honest. The de-brief depended upon the actual behaviour of the subject in the experiments—the minority who disobeyed were told the true purpose of the experiment; the obedient majority were reassured that this was how most other people behaved.

In view of the importance of the topic to layman and scientist alike it is to be hoped that the publishers will rapidly produce it in paperback form and thus ensure its dissemination to a wider audience.

ROBERT M. FARR

The Child in His Family. Volume 2. **The Impact of Disease and Death.** Edited by E. J. ANTHONY and C. KOUPERNIK. John Wiley & Sons, New York, 1973, pp. xxi + 509. \$15.95.

REVIEWING a Yearbook after reading it from cover to cover in a few fell swoops hardly does justice to a book which no one else will ever read in the same way again. The ultimate test I suppose is to leave it on the shelf for five years and keep a record of the frequency of reference and the stimulation and usefulness of the various chapters. A compromise seems to be to select chapters for reading according to current interest and gradually work through them all, preceding each with the editors' linking pieces which play an important part in holding the whole together by making associations between sections. I took the latter course with this book and so was able to digest it in a series of assimilable mouthfuls, rather than in the overwhelming single-sitting blow-out that it threatened to be.

The book is the second volume of *The Child in His Family* Series—a collection of writings on the impact of disease, death and dying in childhood. Where there is a paucity of systematic investigation

into a topic, individual authors in such a book are in a dilemma—do you give reports of interesting or dramatic single cases, or one's statistically-embarrassing small series without comparison groups? As what all clinicians want to know is how to diagnose correctly and what treatment and management strategies have been shown to be useful, perhaps it is best in the absence of reliable knowledge, only to report clearly how one is currently setting about these problems. It is then up to the reader to resist the ever-present temptation to generalise and use such writings as prescriptive formulae for dealing with all cases. Thus, inevitably in such a field at the present time, the chapters are largely descriptive accounts of clinical experience or statements of issues based on such experience. The presentation of systematically gathered information occurs in one account and partially in a second. Rather than select individual contributions for discussion, here is a summary of the areas covered by the international group of writers.

Studies of children with cystic fibrosis report a high prevalence of emotional disorder in the children and illustrate with case-histories the ways in which parents deal with their own stress. Juvenile diabetes is discussed as it presents at different ages throughout childhood. French authors review theoretical and practical clinical issues in chronic renal disease, congenital heart disease and hypochondriasis in childhood. In the sections on the dying child, and death and mourning several authors cover such topics as communication with the fatally-ill child; the emotional state of the children, parents, siblings, medical staff and nurses; mourning in child and parents including anticipatory and other pathological forms of grief reaction; and the role of psychologists, psychiatrists and social workers.

Further sections deal with the background to, and impact of, murder and suicide within the family, and the psychiatric sequelae of the Nazi concentration camps for those who survived and their families. Finally death and disablement in the family are considered from the viewpoint of different cultures with examples from Africa, Asia, South America, the Middle East and Western Europe.

Overall, despite the reservations about this type of book expressed earlier, I think this has been a worthwhile and commendable exercise in bringing together between two covers a useful collection of writings on subjects which need ventilation and open discussion.

ROY HOWARTH

The Animal in its World. N. TINBERGEN. Volume 1, *Field Studies*. Harvard University Press, Cambridge, Massachusetts, 1972, pp. 343. £6.35. Volume 2, *Laboratory Experiments and General Papers*. Harvard University Press, Cambridge, Massachusetts, 1973, pp. 231. £5.25.

IT HAS been pointed out by Mayr and others that there are two forms of biology. The one is concerned with the question how and is centered upon mechanism and structure. The other, evolutionary biology, is concerned with the question why in the sense of "how come". In this latter case the central issue is survival value—or more correctly, reproductive success. What is this process or structure for, it is asked, and how does it ensure or facilitate survival? Contrary to psychology, which as a laboratory science has always been concerned with the analysis of behaviour as a process, ethology has developed in large part as a form of evolutionary biology. Behaviour was, and is seen as an essential component of the animal-environment interaction and which both results from the selection pressures acting upon animals yet also contributes to them, as for instance in habitat selection. This curious feature of behaviour, the dynamic by which it is at once a consequence of and actively contributes to the evolutionary process makes the "logic" of the evolution of behaviour a subtle and difficult matter. These two volumes sample one man's endeavours to untangle this web of interrelated factors in the evolutionary study of behaviour over a 40 year period.

In the introduction to the first volume Tinbergen stresses the importance of knowing something of the totality of the normal behaviour of a species, this for purely comparative reasons as well as knowing what it is one is experimenting with. Biological science must walk a narrow line and we keep our feet by balancing observation against experimentation. Contemporary ethology is perhaps inclining too much to experimentation, he suggests, and the value of descriptive studies needs to be re-emphasized. The first section of Volume 1, therefore, is given over to observational and interpretative studies in the form of a 1959 review of the comparative behaviour of gulls. In common with much of the other contents of these volumes, the work described is well known in the field of animal behaviour and comprises a wealth of descriptive detail. The constant reference to function, in the

evolutionary sense, and the emphasis upon comparative behavioural characteristics places the study of behaviour, in Tinbergen's hands, firmly where it should always be—at the centre of biology. The second section is on field experiments, including some of the classic studies on orientation and hunting in the digger wasp, releasers in grayling butterflies, egg-shell removal in black-headed gulls, food hoarding in the fox and spacing-out as an anti-predation device using carrion crows as experimental subjects. The third section, on laboratory experiments, contains two papers. The one is on the release and orientation of the gaping response in young blackbirds and thrushes, the other on the spines of stickleback fish as a protection against predation by perch and pike. In all, the range of species is a delight and the sophistication of experimental design humbling to those who have doubted the technical adequacy of the discipline. The free and frequent recourse to learning and general experiential factors as explanatory of a substantial amount of natural behaviour gives the lie to those who hold that ethology constitutes the dogma of the innate.

The fourth and final section, which occupies much of the second volume, is more problematic to assess. Here are a sample of Tinbergen's general papers, reviews and wider theoretical excursions. Insofar as there is a detailed integration of the previously documented experimental findings into a broad theoretical framework, as in the 1964 paper "Behaviour and Natural Selection", this section works well. It also includes one of the surprises of Tinbergen's work—a contribution on early childhood autism. And the circumspection of the 1972 Croonian lecture, in which he considers the dangers of human cultural evolution outstripping the adaptedness which we have evolved genetically, is a welcome addition to an area of speculation usually distinguished by its lack of scholasticism. But at another level, some of these papers can be seen as instances of those presumptions of ethology, anthropomorphism and zoomorphism, by which all too easy extrapolation is made on the basis of inadequate if existent evidence, and which lies at the heart of the sense of unease which many psychologists and psychiatrists feel about this approach.

So, warts and all, this is a representative collection of Tinbergen's papers. His writing is simple, lucid and never gratuitously technical. These volumes are required reading for anyone with an interest in behaviour. They would, incidentally, make an excellent core to a course, undergraduate or postgraduate, in the biology of behaviour. In this age of "Readings" we readers seldom have anything to thank the publishers for. But in this instance they have provided us with an easily accessible source to representative work of one of the giants of behavioural biology.

H. C. PLOTKIN

Compensatory Education. Edited by MAURICE CHAZAN. Butterworths, London, 1973, pp. ii + 154. £3.50.

This slim and exceedingly expensive volume is a collection of papers originally contributed to a symposium on "Compensatory Education" at the Annual Conference of the British Psychological Society in 1970. These have now been expanded, have had bibliographies appended and are collected together with an introduction and overview by the editor.

There are four other papers dealing with Compensatory Education in the Nursery School, The Schools Council Research and Development Project, ideas about Action Research and the training of teachers for work with disadvantaged children. This last paper has an appendix listing the training facilities available at the time of printing for training: this comprises details of two courses established at Didsbury College of Education.

In this, as with the large majority of references quoted, everything seems to be bigger and better in the U.S. in which the impetus for work with disadvantaged children originated and which has reported the least encouraging results.

Despite the optimism of the papers they all abound with statements reflecting the current trans-Atlantic disillusion with compensatory notions: "Others objected that the pre-school (programme) could scarcely be considered the panacea for educational problems that were the products of a myriad of social conditions. . . ." (H. L. Williams). Phillip Williams, describing the Swansea Project, quotes from Hunt: ". . . (Compensatory Education Projects) . . . were very blunt weapons being used for what was really a very delicate operation in human development. Partly for this reason they were not as successful as had been hoped."

The book as a whole seems to be trying in a brave but not entirely successful way to show that

what has failed elsewhere can be attempted and may succeed here. Gerald Williams and David Morton end their chapter saying that their ambition is to facilitate a reduction in the levels at which the talents of vast numbers of school children are curtailed and wasted and this sentiment is echoed in a variety of ways by the other authors.

In the end one clear view does seem to emerge from the symposium: that the notion of compensatory education as a discipline and field of study, apart from general education, is dubious. Chazan, in his introduction, makes this point most clearly: "Compensatory Education has also helped to sharpen thinking about the content of school curricula and teaching methods. . . . The term 'Compensatory Education' itself is not entirely satisfactory . . ." but perhaps the most telling quote comes from Williams and Morton's paper. They quote Bernstein and Henderson as suggesting that it is not so much what is taught but how it is taught in schools that effects positive discrimination: "A system of education based on play and learning skills by discovery may well be inappropriate for the young working class child and contribute to his disadvantages in relation to the more play-learning, discovery orientated young middle class child."

These two attitudes really sum up the impact of the book, that attempts at compensatory education in the end lead to an understanding that what is needed is a clear look at teaching methods and curricula in terms of effectiveness, and not in terms of theoretically devised concepts of basically sociological genesis.

A. I. RABINOWITZ

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The Psychoanalytic Theory of Defensive Processes. H. SJÖBÄCK. Halsted Press, New York, 1973, pp. xi + 303. \$9.50.

DESPITE its title, this book is not intended to be a critical treatise on the psychoanalytic theory of defence. What it offers instead is a survey of Freud's own writings on the subject and more recent elaborations gleaned mostly from the writings of American psychoanalysts. In style and general form of presentation, therefore, it resembles an extended critical review of the literature. The author's commentary is confined to providing links between various hypotheses which have been proposed as instances of defensive processes in operation, elucidating some of the obscurities in the quoted passages, criticising ambiguities of formulation, and at regular intervals lamenting the lack of agreement among psychoanalytic theoreticians over definitions of the basic postulates of the system. His hope is that by thus reducing the multifarious hypotheses to some sort of order, he will have taken a first step towards establishing whether some properly representative psychoanalytic hypotheses can stand up to experimental investigation; whether, in more general terms, psychoanalytic theory can begin to justify its claim to the status of a "general psychology".

The general intent is laudable, and the author has carried out his task with thoroughness, even though the rather arid text neither reflects nor engenders the excitement of discovery. Yet one is prompted to question the usefulness of the enterprise in the form in which he has realised it. The author admits that several of the hypotheses discussed are little more than generalised descriptions deriving from single observations. Often these have been dignified as fresh "hypotheses" to lend scientific demeanour to a reported case history without any serious consideration by their proponents whether these are consistent with, or counter, or can be adequately explained in terms of some established theoretical construct. Is any useful knowledge to be gained, for instance, from a table listing the "mechanisms of defence" compiled by a dozen different authors, when one is fairly certain that each has made his list without reference to the others, using quite different criteria of selection? What such data collections show is what one had already suspected: that psychoanalytic theory desperately needs its William of Occam.

It is arguable that the trouble over definitions and nomenclature in psychoanalytic theory arises,

not as the author supposes, from a dearth of systematization, but from a welter of uncontrolled pseudo-systematization, divorced from the rigorous observations and critical reporting which Freud on the whole practised. It is worth recalling that Freud himself never proposed a list of "defence mechanisms"; indeed he hardly ever used the term "mechanism" to qualify defensive manoeuvres until very late in life, when his daughter wrote a book devoted to the topic. His practice was to consider them descriptively as patterns of transformation, rather than as a repertoire of statically conceived mechanisms which could somehow be sprung into operation. Much recent writing about "defence" has been vitiated by an undue emphasis on the mechanics of a supposed "mental apparatus" powered by "psychic energy". In the process, Freud's theory of knowledge has been misconstrued, and this has given rise in its turn to a confusion (to which this book bears witness) between Freud's distinct conceptions of "Verleugnung" ("disavowal"), "Verneinung" ("negation"), and "Verdrängung" ("repression"). The author himself acknowledges the great confusion that exists, but by simply listing and commenting on the alternative current formulations, without going back to the basic postulates—and examining their relevance in relation to them—he runs the risk of institutionalising these confusions instead of helping to resolve them.

As a guide to current concepts and terms, the book may be of some use for purposes of reference, though even here it is limited by the exclusion of all mention of Kleinian theories, as not, in the author's estimation, belonging to the mainstream of psychoanalysis. The cramped style and the small print make it a forbidding labour to read from cover to cover. There are a number of minor misprints. Surely it would have been preferable to have these corrected in the text at the galley-proof stage, rather than listed as errata at the end of the book?

A. C. REEVES

Social Therapy in Psychiatry. D. H. CLARK. Penguin Books, Harmondsworth, 1974, pp. 157. 45p.

CLOSER links with child psychology and psychiatry could support the practice and principles of social therapy in adult psychiatry. In his new book the medical superintendent of Fulbourne Hospital shares his experience of creating a style of management which allows a highly differentiated personal environment, avoids the accumulation of secondary handicaps and encourages "activity, freedom and responsibility" in staff and patients. He shows the value of seeing that all involved contribute to the "therapeutic milieu"—including maintenance staff, research social scientists and fellow patients. But more could be offered by clinical psychologists and the importance of engaging the family in care and treatment is unrecognised.

This book is timely. District general hospital policy threatens to reimpose a dominant medical model on psychiatric services. Everyone concerned—families and community health councillors as well as professionals and patients—should start seeking answers to the questions set out on pp. 69–71. As a recipe for service organisers, David Clark's first book *Administrative Therapy* is not surpassed. Both provide vignettes of perceptive analysis, practical technique and wisdom.

More adequate theory for social therapy is being sought. Socialisation in the family suggests parallel processes. The model advanced in the book is based on "ego growth through successful crisis resolution". But change does not occur only in recognisable crises, and "growth" models sometimes progress to the damaging idealisation of producing perfect people in an imperfect world. The complementary school in British social psychiatry has therefore emphasised "coping mechanisms" and the need for a series of supported social positions to be available for these with residual handicap. Psychiatric services are often engaged by people who lack individual power and therefore appear unmotivated. An approach to social motivation centred on the individual's search for meaning might pick out the impetus for social learning and predict the direction of crisis resolution.

MICHAEL RADFORD

The Disabled Schoolchild. A Study of Integration in Primary Schools. ELIZABETH M. ANDERSON. Methuen, London, 1973, pp. xiv + 377. £5.

THE TITLE of this book is misleading. It does not indicate that this is a study of a small sample of children suffering from a restricted range of physical handicaps, or that "it was intended from the start that the study should include only children within the 'normal' range of intelligence".

The author's final paragraph ends thus: "I hope that I have drawn attention to the need for a

very sober and down-to-earth assessment of the practical problems involved. I hope even more, however, that I have conveyed something of the exciting possibilities open to us for furthering the integration of disabled people in the community by making ordinary schools special." These statements constitute a realistic appraisal of her achievement.

The book's lack of organisation arises in part from the dual nature of the author's attack. On the one hand she provides a mass of facts and figures with no less than 16 appendices occupying some 50 pp. of the text. On the other hand she presents long passages of anecdotal reporting about individual children and about the problems their parents encountered in their dealings with various specialists and officials.

Miss Anderson is much more successful with her reporting than with her treatment of the facts and figures, about which she is unusually and properly apologetic. Although there are times when she launches into full-scale statistical analysis of a particular table, for the most part she leaves her statements vague.

This kind of treatment of the data invites the reader to ignore the tables completely. There are times however when her statements are so difficult to understand that reference to the original figures is essential. In Chapter 2 for example she writes: "Comparisons as regards social class were also made between children with and without neurological abnormalities (Appendix D.6). While the social class distribution in the group without such abnormalities closely resembled the national distribution, professional families were presented in the neurologically abnormal group."

An attempt to discover what that paragraph could possibly mean involves turning to Appendix D.6 on p. 317, and then looking for the national distribution, which appears in the body of the text on p. 41. This kind of hunting about is irritating and should not be necessary. Meaningless statements should not appear in the text, and tables relating to the same textual material should either appear together or be cross-referenced.

Here then is a sound and humane statement about the possibilities and limitations of integrating some physically handicapped children into ordinary primary schools; it is marred by stylistic infelicities amounting at times to ambiguity or incomprehensibility, and by the author's uncertainty about her treatment of her own data.

JOHN WILLCOCKS

The Language of Psycho-Analysis. J. LAPLANCHE and J.-B. PONTALIS. The Hogarth Press and The Institute of Psycho-Analysis, London, 1973, pp. xv + 510. £6.50.

The Language of Psycho-Analysis, translated from the French edition, published in 1967, fills an important gap in the literature of psycho-analysis. It combines the function of a dictionary of technical terms with that of a reliable guide to the conceptual framework of psycho-analysis, and as a "work-tool" for research. The study of the literature and writing of the book took nearly eight years, and its thoroughness can be attested by the fact that the reviewer did not find any significant omissions.

As most psycho-analytic concepts originate in the writings of Freud, the authors have, with the exception of Melanie Klein, restricted themselves to his works. The method of studying the concepts is a historical one, and special attention is given to Freud's first complete statement on the functioning of the mind—*Project for a Scientific Psychology*—written in 1895. The articles are arranged in an alphabetic order, and the connections between the concepts shown by a comprehensive system of cross-references. This is one of the most interesting features of the book as it helps the reader to identify significant links between the concepts and will undoubtedly assist the researcher to "discover groupings, internal relationships, and 'nodal' points which differ from those upon which Freud's ideas are based." There are over five hundred entries, covering the whole field of classical psycho-analysis: psychopathology, technique and theory. Each article starts with a definition and is followed by a commentary which describes the history of the concept and its place within the theory. Finally, the authors point out the ambiguities and suggest ways of resolving them. The entries are illustrated with extensive quotations from Freud's writings, and there is a bibliography at the end of each article.

The book is written in a readable style and gives a clear exposition of Freud's ideas. As most of the psycho-analytic concepts originated from the treatment of emotionally disturbed individuals, psycho-analysis is usually considered as a branch of medical psychology. A careful reading of this book, however, shows that Freud's main interest was in working out a general theory that would explain both normal and abnormal functioning.

Since the authors are working in France, the influence of their background is bound to show in their commentaries. Instead of being a drawback, it gives the English reader an idea of the trends in psycho-analytic research on the continent. While the psycho-analytic movement in the Anglo-Saxon countries is influenced by the biological sciences, in France the influence of literature, linguistics and structural anthropology is stronger. This trend is reflected in the writings of Jacques Lacan—a highly creative but controversial thinker—whose ideas are frequently quoted in this book. By emphasizing the subjective and imaginative elements in mental functioning, Lacan has tried to counteract the instinctual bias of the theory. Amongst his varied interests, he has given special attention to motivational structures, unconscious phantasy and the study of symbolism. Following on Freud's study of wish-fulfilment in his theory of dreams, Lacan has introduced the notion of 'desire' and given it a special place in the individual's motivational system. Desire is distinguished from need in that the object which satisfies it exists in phantasy, whereas the object of need is a real one. Laplanche and Pontalis have used the concept of desire in their discussion of infantile sexuality, object-relations and phantasy. In a highly interesting discussion of the development of sexuality they point out that the ideational components of sexuality come into existence after the link with the self-preservative (nutritional) instincts is severed. The object of the self-preservative instincts—which had also been the object of the sexual instincts—is no longer satisfying, and the sexual instincts search for an object in phantasy. This is also the moment when phantasy comes into being and starts to play a significant part in mental functioning. Lacan's idea that there exist in the unconscious, schemata or structures which cannot be attributed to experience and which are articulated through interaction with the environment, serves the basis for a discussion of 'Psychical Reality', 'Primal Phantasies', 'Oedipus Complex', and many other articles. These ideas, although derived from Freud's writings, are controversial, but it is important for the progress of psycho-analysis that they are debated.

This book will undoubtedly become a major reference work for the student of psycho-analysis and will be quoted and discussed for many years.

K. MEHRA

Development and Regeneration in the Nervous System. Ed. R. M. GAZE and M. J. KEATING. *British Medical Bulletin*, 1974, Vol. 30, pp. 89. £2.25.

THE PAPERS in this volume discuss the following important questions:

- (1) How do the axons of nerve cells find their sites of termination during development?
- (2) If the axons are experimentally cut, under what conditions do they grow back to their original sites of termination?
- (3) What chemical conditions in the internal environment are essential for the healthy development of the nervous system?
- (4) What stimulation from the external environment is needed for the normal growth and function of the nervous system?
- (5) If the nervous system develops abnormally due to pathological conditions in the internal or external environment, to what extent can the brain compensate and subserve normal behaviour?

Of these questions, readers of this journal are likely to be most interested in the last three.

The papers on the first two questions describe work which is particularly elegant. Gaze, for example, discusses the classical experiments of Sperry indicating that fibres find their sites of termination by a system of chemical labelling. The experiments of Gaze and others on the tectum of the goldfish suggest that the chemical labelling is not as specific as was originally thought, since after removal of the posterior part of one tectum the fibres to this area reconnect to the anterior part in an orderly way. Mark describes work on the eye muscle of goldfish showing that a muscle can recognize the embryologically correct nerve, and that terminals from this nerve can render junctions with other nerves ineffective, even though these junctions appear normal in electron-micrographs. A paper by Prestige shows that nerve cells die if they fail to find sites of termination. Watson reviews the effects cutting the axon of a cell on protein synthesis in that cell. Finally, Berry and Riches ask why regeneration does not occur in the adult central nervous system of mammals, and suggest that it may be suppressed by immunological mechanisms.

Four papers review the effect of changes in the internal environment on development. Balazs discusses hormonal influences on the growth of the brain, Dobbing describes the effect of infant

starvation on the development of the brain and behaviour of animals, and Tizard describes the effects of starvation in man. Leck contributes a review of the epidemiological evidence on the causation of neural tube defects such as in anencephaly and spinal bifida.

Four papers are concerned with the effects of deprivation of external stimulation on the development of the nervous system. Cragg gives evidence that visual experience is necessary for the growth of synapses in some structures in the visual system. Keating shows that rotation of one eye in the larval *Xenopus* leads to reorganization of the terminal sites of the commissures linking the two optic tecta, and that this reorganization fails to take place if the animals are reared in the dark. Blakemore reviews the effects on the physiological properties of cells in the visual system of depriving kittens of patterned light, or of limiting the patterns experienced to particular orientations. Finally, Bower describes the extent to which experience is necessary for the development of certain perceptual skills in children.

Only two papers say much about recovery of function. Clarke and Clarke describe the extent to which people who suffer from a mild or severe mental deficiency can be trained in spite of these handicaps. McDonald suggests that the temporary recovery shown by patients with demyelinating diseases may be due to partial remyelination.

The standard of the papers is high. Many of the reviews such as those by Gaze and Blakemore will prove very useful. The volume is marred only by a rambling introduction by Young. Readers of this journal may be disappointed that no papers were included on recovery of higher functions in animals and man after brain lesions inflicted during infancy. However, this collection of papers can be highly recommended, especially at so low a price.

R. E. PASSINGHAM

Issues and Trends in Behaviour Therapy. Eds. HENRY E. ADAMS and IRVING P. UNIKEL. Charles C. Thomas, Illinois, 1973, pp. XII + 276. \$10.95, \$7.95 flexi-cover.

"TEN YEARS AGO", writes Ullman in his second contribution on this book, "behaviour therapists met the Rosen and Gregory criteria for mental illness: they were statistically rare, they were unhappy, and they did not conform" (p. 70). The basic question is not whether behaviour therapy is established but where it is going. In a volume of this length the editors have wisely made no attempt at exhaustive coverage, but have instead selected the issues and trends that they regard as the most significant. The result is a collection of seven purpose-written articles, divided into two sections. Part I deals with theoretical developments and general issues in Behaviour Therapy, while Part II describes three important practical developments with their implications for the future.

In the opening chapter, Adams, Heyse and Meyer dispose of the view that behaviour therapy is merely a collection of techniques, to be prescribed like pills for different well-defined diagnostic categories. After a discussion of the literature on the variables of client and therapist personality characteristics, they conclude that a therapeutic relationship is a necessary, but not sufficient condition for success in more intensive, long-term treatments.

The behavioural treatment of existential problems is discussed lucidly by Ullman in the first of his two articles. If at one stage he comes close to implying that non-behavioural psychotherapists have existential problems (stemming from a hypercritical attitude which demands that the whole person be changed rather than one facet of his behaviour), this does not invalidate his conclusion that existential problems can be helped by behaviour therapy, even though the label itself is not a useful diagnostic category.

Unikel's review of behaviour therapy research concentrates on anxiety reduction procedures and verbal conditioning. He also draws attention to a gap in the research literature, arguing that more attention should focus on the variable of consumer satisfaction.

The final chapter in the first section of the book is a penetrating, wide-ranging and provocative exposition by Ullman enigmatically entitled: "Perspectives in Experimental Clinical Psychology: One View". With his customary clarity he argues that behaviour therapy affects, and is affected by, the social context in which it occurs. "Just as clinical psychology was once applied personality theory, it now is applied learning theory, and may become in the near future applied social psychology" (p. 66). The implications clearly are that specified target behaviours must sometimes be shaped (or eliminated) in the professional personnel who run institutions, and that this process cannot be distinguished from what is popularly called treatment.

Well over two-thirds of the book is devoted to the three articles in Part II. The three topics selected for inclusion are the treatment of obsessive-compulsive disorders, the development of procedures for re-training the families of aggressive boys, and a critical evaluation of behavioural fear assessment.

Meyer and Levy's chapter on obsessive-compulsive disorders in adults reviews previous behavioural attempts at treatment, and then gives a scrupulously thorough account of the experimental, theoretical and clinical data that led to the development of treatment based on response prevention.

Like Meyer and Levy, Patterson and his colleagues first describe the principles underlying their procedures for training the parents of aggressive boys in the management of their own children. In the course of group sessions based on a specially designed programmed text book, the parents were taught to apply behaviour modification principles in their own homes, aiming simultaneously to increase adaptive behaviours and decrease coercive ones. The results generally were encouraging. Of thirteen consecutive referrals thought to be typical of the more difficult cases referred to Child Guidance Clinics, nine showed substantial improvement, maintained on a twelve month follow-up. However, the treatment was sometimes expensive in professional time (a range of 5-133 hr) and Patterson concludes that some difficult families may need continuous supervision if they are not to relapse. Although preferable to institutionalization, one wonders how viable this would be outside the context of a specially funded research project.

The final chapter, by Douglas Bernstein, looks critically at the behavioural avoidance tests used in anxiety assessment; he concludes that a number of demonstrable artifacts prejudice the objectivity of these tests. Unfortunately, the article lacks the clarity of the other contributions.

The quality of the individual contribution is generally high, but the book has a rather disjointed feel. After the incisiveness of the four contributions on general issues in Part I, it might have been preferable to have sacrificed some detail in order to cover more than three practical developments in Part II. Nevertheless, this book is a timely and stimulating review of theoretical and practical issues in behaviour therapy and should be valuable to workers with children as well as adults.

DAVID GALLOWAY

Child Behaviour Modification: A Manual for Teachers, Nurses and Parents. LUKE S.

WATSON, JR. Pergamon Press, Oxford, 1973, pp. xiv + 147. £4.25, £2.50 p/b.

THIS is intended as a basic "cookbook" text for nurses, teachers and parents working with mentally handicapped children. It assumes no formal knowledge of Psychology or Learning Theory, and on the whole fulfils the author's claim that psychological principles are discussed in simple every-day terms. Although jargon creeps in (why do all Behaviour Modifiers insist on talking about "sitting behaviour") new terms are introduced gradually and with adequate—sometimes more than adequate—explanation. The glossary at the end of the manual has 18 entries ranging from "Behaviour Modification" to "Transfer of Training".

Starting with a rationale for using Behaviour Modification, the text progresses through the basic principles of operant conditioning. Shaping, the use of reinforcement for generating and maintaining adaptive behaviour, eliminating maladaptive behaviour, stimulus control, and data collection are dealt with in successive chapters. Each chapter has a number of sub-headings; important points are summarized in tables, and photographs illustrate some of the step-by-step instructions in topics such as successive approximation in developing self-help skills.

The reader can assess his understanding of the text with the True-False tests at the end of many of the sub-headings, and these are supplemented at the end of each chapter with Fill-in the Blanks tests, and "Essay questions" requiring a one sentence answer.

The manual was developed for use in the author's Ward Behaviour Modification Project, and herein lie its principal limitations. Inevitably, the text reflects the procedures used at Columbus State Institute, and this at times leads to an over-emphasis on certain techniques with a corresponding under-emphasis on others. Thus, the backward training method for teaching dressing skills is described in detail, but there is barely a mention of the continuous guidance method of teaching the same skills. This would probably not matter if, as originally intended, the Manual is used in conjunction with a pre-recorded set of lectures and slides, presented by trained personnel. Whether parents, or teachers or nurses could follow the text without support, let alone feel equipped to develop their own programmes after reading it, seems much more doubtful.

Bearing these limitations in mind the Manual would be useful as the core for an elementary in-service training course and it is recommended to psychologists and others who are concerned with staff training in behaviour modification programmes.

DAVID GALLOWAY

Behaviour Modification Procedure: A Sourcebook. Ed. by EDWIN J. THOMAS. Aldine Publishing Company, Chicago, 1974, pp. x + 323. \$6.95. (British price unknown.)

ALTHOUGH described as containing "much original material" this book consists almost entirely of already published articles, some 7 years old, and only one chapter and a few introductory passages were actually written for the book.

The book falls into 6 main sections. The introductory chapter briefly describes the various different techniques, such as flooding, implosion, desensitization, which are subsumed under the name of "Behaviour Therapy". The inadequate theoretical basis of behaviour modification is discussed, and the author accepts with equanimity the view that behaviour modification is a technology rather than a science. His *cri-de-coeur* is for increased technological sophistication in treatment rather than for theoretical refinement.

The following section discusses the number of different approaches to behaviour modification with adults and children. Group treatments, training in naturalistic settings, and Community Programmes are dealt with. The ways in which behavioural techniques are also beginning to play an important role in traditional social work practice are also described.

Later sections deal with interviewing techniques; a variety of methods for observing, recording and reinforcing behaviours; and a number of schedules and checklists used for assessing both problem behaviours and reinforcing stimuli.

A final section discusses electro-mechanical devices used in the observation, assessment and treatment of behaviour.

However, although the book deals with the basic techniques underlying behavioural treatment, very few case studies are presented which have actually utilised these techniques. In addition, the age of many of the articles included hardly makes this the most up-to-date of sourcebooks. Since many of these articles were originally published the sophistication of behavioural studies, particularly in the natural environment, has increased enormously, far more so than one would imagine from reading this volume. The technological refinements called for in the first chapter are already being implemented in many studies, and the practical problems as well as the value of many of the techniques discussed are now coming to be recognised and more fully explored. Any reader wishing for information on current behaviour modification procedures would do far better to turn to a few recent issues of the many, easily available, behavioural journals rather than spend a considerable amount of money on this rather limited selection of articles.

PATRICIA HOWLIN

Child Caring: Social Policy and the Institution. Ed. by DONNELL M. PAPPENFORTH, DEE MORGAN KILPATRICK and ROBERT W. ROBERTS. Aldine Publishing Company, Chicago, 1973, pp. 325. No price given.

In 1966 the first American census of children's residential institutions was published in seven volumes; it covered the care of more than 155,000 children, including the neglected, the delinquent, the mal-adjusted as well as young unmarried mothers. The survey therefore had the virtue of crossing the conventional administrative boundaries of education, health and social services. In order to disseminate the information collected, eight papers were commissioned for a conference in 1971. These papers make up the chapters in this book together with a final summary of the conference discussions, which raise the wider social issues involved.

Although the facts and figures are almost entirely American, the problems are in many ways similar to those in Great Britain: when is residential care appropriate? how to improve assessment, selection, staff training? how to formulate, let alone evaluate the aims of any institution? Do care, education, custody and treatment have to be alternatives? Inevitably it is easier to ask questions than to provide answers. The American "residential treatment centres" however, seem to have bridged the unfortunate gap which exists in England between special schools and homes for children in care.

The first chapter provides the historical background. It is perhaps salutary to be reminded that in 1893 a conference on Charities, Correction and Philanthropy complained "that some states were

not providing adequate data about their child care programs", that in 1856 "the present alarming extent of juvenile delinquency" was a matter of concern, and that even in 1884 very few children in care were full orphans and many were the children of immigrants.

In chapter two Wolins reviews the literature on institutions. His academic approach gives way towards the end to a brief discussion about the difficult role of professional adviser to any institution. Chapter three by Anne Shyne is especially useful for students; she looks systematically at the problems of research in institutional settings and reviews the relevant American literature. There is a valuable reference list.

The next five chapters are concerned with policy and planning issues in seven different types of institution, very much related to American administrative systems. The book ends with a plea for more integrated social services, policies of family care, the use of criteria for placement based on a child's need rather than the precipitating incident leading to referral, and for community based institutions. Used selectively this is a useful reference book; it provides no solutions, but it does present familiar and pressing problems in a research context. A comparable survey of English institutions for children could provide a valuable basis for policy decisions which, at present, tend to be made on limited evidence and often within one administrative department only.

EVA HOLMES

Successful Group Care. Explorations in the Powerful Environment. Ed. MARTIN WOLINS.
Aldine, Chicago, 1974, pp. viii + 463. \$14.75.

TWENTY years after the post-Bowlby condemnation of any form of "institutional" upbringing for children, the attitudes of child care professionals have begun to soften somewhat. The reasons for this tend to be rooted firmly in necessity and include the fact that children continue to be abandoned and deserted in numbers far too great for sufficient substitute families to be found; the awareness that many of these children appear to have emotional needs which would be difficult to satisfy in a "normal" family setting, and the unfortunately growing evidence of the physical and mental torments children can experience in their own families. In addition it has been increasingly shown that group care is by no means inevitably harmful.

Martin Wolin's book goes beyond attempting to confirm this lack of harm and sets out to explore the constructive aspects of group care and the "power of small communities to promote a capacity to love and work". His book brings together 20 papers, most of which have been previously published elsewhere, mainly by American or Israeli authors. The contributions are grouped into 6 sections which include "Young Children in Group Care", "Meliorative Environments" and "History, Ideology, Politics and Other Relevancies". Each chapter is briefly introduced by the editor and suggestions for further reading are given at the end of each section. Contributors include Brofenbrenner, Maas, Skeels, Wolins himself and at first glance somewhat surprisingly, Spitz, whose 1945 and 1946 papers are combined to form one chapter. The work of many of the remaining authors would be less well known.

I found the book extremely thought provoking. The value of reading in a new context a paper previously known is well illustrated in the Spitz contribution; the new context being provided by the editor's suggestion that the reader concentrate on the apparently positive changes experienced by Spitz's control group. In addition to the "clinical" aspects of the topic, one is continually confronted with a range of important questions concerning the ethics and ideology of group care, a term which is used here to include not only the expected children's home and kibbutz, but also a variety of other settings ranging from a Soviet boarding school to a catholic seminary. In such a collection there will be surprise at obvious papers omitted and dissatisfaction with some included; some repetition is inevitable. Overall, however, the editor has done his work well, both in selection and in his linking comments. A most useful book.

STEPHEN WOLKIND

The Adolescent and His Environment: Contributions to an Ecology of Teen-Age Behaviour.
Ed. H. THOMAE and T. ENDO. S. Karger, Basel, Switzerland, 1974, pp. vi + 110. £6.40.

THE cost of this little book is startling and it is not easy reading. Most of the papers have been written (or translated) by authors whose English is competent but not always smooth or immediately comprehensible. The contents consist of papers prepared for a symposium at the 20th International Congress

of *Psychology* at Tokyo in 1972. The value of the book, therefore, lies in its bringing together reports from researchers whose work is normally published in foreign journals. There is no U.K. contribution but this may reflect the cost of travel to Japan rather than the extent of interest in this country in the ecology of adolescence.

Various aspects of environment and of adolescent behaviour are considered: social class, urban/rural differences, recreational facilities, adult demands, among the environmental variables; adjustment, attitude to opposite sex, vocational choice, responsible participation in the community, among the behavioural variables. Methodology ranges from the classical ecological approach of Barker, through interviews and questionnaire methods, to the use of standardised tests. Only one writer takes note of maturational status—this factor is so consistently disregarded in studies of adolescents that one feels faintly eccentric in suggesting that it may, however indirectly, influence a youngster's behaviour.

Research in the field of adolescence is surely welcome, especially where it strives to look at young people in their own environments, but not all these studies give adequate information on statistical procedures and so it is hard to assess their value. I find particularly interesting the papers which seem to offer leads to understanding the "difficult" adolescent, whether in terms of availability of positions of responsibility (Schoggen and Barker) or in terms of adult expectations (Kossakowski).

MARGARET R. PHEMISTER

What Shall We Teach? JOHN E. MERRITT. Ward Lock Educational, London, 1974, pp. 78. £1.25.

THE PURPOSE of this book is to suggest and to demonstrate teaching methods which are more meaningful, interesting and educative than the traditional "subject" methods. The idea is that pupils should learn to plan projects aimed at achieving certain particular goals which it is hoped they will themselves suggest and consider as worth while. They should then discover through discussion how to decide on the best methods of implementing their plans and carrying their decisions into action; and how to evaluate their outcome. Certain proposed projects are described, but in some cases the contents seem rather trivial; for instance, "preserving the environment" appears to have ended in the collection of litter. Thus it would seem that extensive supplementation would be needed through ordinary "subject" teaching. However, more educative material could be introduced by centering projects on human roles and needs, as described in the last chapter.

The implication is that by employing these methods children will learn to plan and to make and implement decisions in many other contexts; and indeed in relation to their own lives in what the author calls "personal management skills". But no evidence is adduced as to whether children do in fact learn in this way to make such generalized applications. It would seem more likely to occur in fairly intelligent adolescents than in 10-year-old children who may have small ability for generalization. Thus the book may be of value in suggesting methods which *might* enable some children to acquire knowledge and skills relevant to their way of thinking and living—though it could have done so more clearly and systematically. But the utilization of these methods really stands or falls on a better evaluation of their efficacy than is provided merely by teachers' opinions. M. D. VERNON

Psihoterapija, *Journal for Psychotherapy and Allied Disciplines*. 1973. Vol. 1, No. 1. Centre for Mental Health, University Hospital Rebro-Zagreb. Biannual. \$6.00.

THIS new Journal comes from a group of psychoanalytically orientated psychotherapists working in the Centre for Mental Health of the University of Zagreb. They are followers and students of the late Professor Betlheim who was the founder of the Centre. It is clear from the warm and generous tribute that they pay to him that Professor Betlheim played a key role in the establishment of psychotherapy in Yugoslavia as well as in the foundation of the Psychotherapy Department of Zagreb University. The publication of "Psihoterapija", the first journal of its kind in Yugoslavia from his Department, represents an important achievement for psychotherapy.

Its aims are that it should provide psychiatrists and psychotherapists with a forum for the discussion of the principles and practices of psychotherapy, including research, with the express intention of fostering the use of psychotherapy as a mode of treatment. At the same time, it is hoped also to encourage communication with those of a non-analytic orientation by publishing suitable contribu-

tions from them. Finally, it is intended that the journal should concern itself with the problems of training in psychotherapy particularly in relation to the needs of the non-medical disciplines.

The contributions to this first volume reflect the various aims of the Editorial Board. The theoretical papers include an article on training in child psychotherapy, a report on the clinical application of Bannister's Repetory Grid, a review of the recent psychoanalytic literature on *anorexia nervosa* and an article reviewing the influence of Yugoslavian sociocultural factors on the effectiveness and process of group psychotherapy in three cultural subgroups of patients. The clinical papers include two single case studies, one on exhibitionism and the other on impotence and a paper on "The Psychotherapy of Schizophrenia" by Thomas Freeman which is concerned with the application of psychoanalytic understanding to the management of schizophrenia in the clinical situation, generally obtained, where individual psychotherapy is neither economically feasible or therapeutically indicated.

There can be little doubt that the journal will be welcomed by all those practising and interested in psychotherapy in Yugoslavia, and in other Eastern European countries, and it obviously provides a hitherto unmet need.

As far as the English speaking reader is concerned however, in trying to fulfil its several aims, the journal is likely to be too specialised for the majority of general psychiatrists, whilst failing to provide a sufficiently high standard of sophistication and academic rigor to interest the specialist in psychotherapy. In this first number too, the poor translation makes somewhat tedious reading.

C. R. LINDSEY

Childhood Psychosis. Initial Studies and New Insights. L. KANNER. John Wiley & Sons, New York and London, 1973, pp. xii + 283. \$10.95.

DR. LEO KANNER's first and most complete account of what came a year later to be called "early infantile autism" was published in 1943 in *Nervous Child* (now difficult to obtain) under the title "autistic disturbances of affective contact". Four papers during the next decade filled in gaps in the original description of the syndrome. This volume, with introductions by Michael Rutter and Leon Eisenberg, brings together these five and a further 11 papers. The most important of the later papers report on the follow-up of the 11 children of the first paper after more than 25 years and of the 96 autistic children known before 1953 to his clinic at the Johns Hopkins Hospital. The last paper, not hitherto published, evaluates the progress made by 34 psychotic children treated at the Linwood Children's Center. Other papers review the conception of early infantile autism and reaffirm, with little shift of emphasis, that the children's inability to relate themselves in the ordinary way to people and situations from the beginning of life, failure to use language for the purpose of communication, and anxiously obsessive desire for the maintenance of sameness are to be regarded as the cardinal features of the syndrome.

Eisenberg remarks on Kanner's ability to look with a fresh eye, clarity of observation and freedom from theoretical preconceptions. The histories Kanner gives in the original papers are lucid, vivid and still of great interest, but inevitably they reflect the assumptions he made about the nature of autism. They leave out much to which attention would nowadays be paid, perhaps especially the conditions affecting the establishing during the first weeks and months of infancy of patterns of communication, both non-verbal and verbal, between infant and parent.

Brought up in the traditions of the psychiatry of the years between the wars, and a pioneer in the psychiatry of children, he was interested in the syndrome as a disease entity and in its nosology, especially its relationship to schizophrenia. He assumed, as others have done, that, because they appear in early infancy, the disabilities are innate. Little was known in the 1940s about the processes of attachment of mother to infant and infant to mother, although Lorenz had already in 1935 described the imprinting of goslings. He depended on Gesell's time-tables of development in infancy, and knew little of the subtle conditions affecting the acquisition in infancy of language and other skills. Experimental models of obsessive-compulsive behaviour were still crude.

His approach was child-centred, although he referred in his original papers to the psychodynamics of earliest parent-infant relationship. In describing the parents he wrote of their high intelligence, obsessiveness, undemonstrativeness, perfectionism and preoccupation with abstractions, and also of the mechanization of human relationships. Subsequently he insisted: "At no time have I pointed

to the parents as the primary, postnatal sources of pathogenicity". Only in a later paper did he introduce indirectly the idea of interaction between parent and infant when he wrote of the parents as "actively contributing co-therapists".

Controversies over autism might have been more productive, had Kanner posed questions, not about the syndrome, but about its components, not in psychiatric terms, but in the terms of the development of behaviour. For what reasons does the development of social relationships go wrong in infancy? For what reasons do infants fail to acquire the capacity to comprehend animate (and inanimate) sounds? For what reasons do infants strive to preserve sameness?

DEREK RUSSELL DAVIS

Perception and Understanding in Young Children. PETER BRYANT. Methuen & Co. Ltd., 1974. £2.90.

PERHAPS because they are not good at speaking for themselves, very young children have tended to encourage some fairly weighty theories about the precise nature of the "blooming buzzing confusion" that occupies their tiny minds. Against this background it is refreshing to discover a psychologist who not only questions existing theory but outlines a series of ingenious experiments which may well cast new light upon how very young children perceive and understand their environment.

The disarmingly courteous manner in which Dr. Bryant exposes the flaws in experiments by Piaget and the gentle diffidence with which he demolishes classical pieces of research by SR theorists are enough to gladden the heart of any misunderstood baby. From his critical analysis of research by others, coupled with findings from his own experiments, Bryant concludes that the perceptual judgements of very young children depend upon the use of relative rather than absolute codes, and that their perception of orientation, position, size, number and invariance depend upon the relational frameworks within which each of these occurs. With the possible exception of "number" his arguments are convincing.

Basic to his theory is the hypothesis that an ability to make deductive inferences is a fundamental part of the young child's behaviour. Having experienced that *A* is larger than *B* and that *B* is larger than *C*, can he combine these two experiences to infer that *A* is larger than *C*? Researches by others suggest that he cannot. But as Bryant points out, these studies did not control for forgetting of the original experiences nor indeed do they obviate the possibility that apparently correct inferences were merely cases of the child parroting the label "larger"? His overcoming of these difficulties in a study which demonstrates that very young children *can* make inferences based upon a combination of two earlier experiences is impressive and ingenious. Equally interesting is his approach to the problem—can children recognise objects cross-modally *before* they are old enough to describe the objects in words? What was needed was a cross-modal matching task that did not require verbal instructions and was brief enough to sustain the baby's attention.

Faced with this problem Bryant and his colleagues exploited the fact that very young children tend to reach for objects which make a noise. In their experiment babies are shown two objects which differ in shape. They then feel one of them without seeing which it is. But while so doing the object emits a bleep. They are then shown both objects for the second time. Out of 30 babies 23 reached for the object which had been felt and heard. Since the subjects were less than one year old, two conclusions follow—even the preverbal infant has some sort of cross-modal dictionary, and the old hypothesis that cross-modal linking requires mediation by language is no longer tenable. An interesting question raised by this study is whether the initial stage is necessary for the subsequent matching. Does access to the cross-modal dictionary require the prior visual experience? The reviewer understands* that Dr. Bryant intends examining this issue.

If there are flaws in Bryant's exceptionally well written account these seem confined to sins of omission. Problems of laterality and the development of cerebral dominance receive scant attention and this only in the context of the mirror-image controversy. Gregory's theory of hypothesis selection, Michotte's work on responses to perceptual invariants and Vernon's 1957 paper on the role of cognitive quasi inferences, though not directly concerned with infantile behaviour might have been used to provide a basis for looking at Bryant's data in the wider context of adult perceptual/cognitive processes—if only to consider the question of whether or not important qualitative changes in cog-

*Personal communication from Dr. Bryant.

nitive and perceptual strategies occur between childhood and maturity. But then one cannot expect everything for the very modest price of £2.90 for a hardback.

All in *Perception and Understanding in Young Children* should be of great value to perceptionists, educationalists, and indeed all who are interested in the ontogenesis of cognition.

N. F. DIXON

REFERENCES

VERNON, M. D. (1957) Cognitive inference in perceptual activity. *Brit. J. Psychol.* **48** (1), 35-47.

Behaviour Modification in Children: Case Studies and Illustrations from a Summer Camp. Ed. by H. C. RICKARD and M. DINOFF. University of Alabama Press, Alabama, 1974, pp. 174. No price given.

CAMP PONDEROSA is a far cry from a Butlin's Holiday camp. It provides a "behaviourally oriented therapeutic camping program" for children who are "mildly disturbed and who may be experiencing academic underachievement and disturbed peer, parent and authority-figure relationships". It caters for 45 children, in the general age range 7-14 and all children "must be average in intelligence or his tests suggestive of average intellectual potential and he must be able to function in a group situation".

This book, edited by the directors of the camp, is a collection of papers, most of which have appeared in journals, describing work carried out at Camp Ponderosa. As the title suggests, the theme common to the papers is the use of behaviour modification techniques. However, the editors also note in the introduction that "many of the benefits from the camping program were probably derived from a kind of natural therapy intrinsic to camping rather than planned reinforcement contingencies" (p 22). Nevertheless they proceed to describe only those studies based on explicit reinforcement contingencies.

The papers are grouped into three sections, each introduced by a very brief review of related research. Section 1 deals with "Case Illustrations" of the effect of reinforcement contingencies on behaviours such as toothbrushing, tidiness and soiling. These studies vary from an anecdotal account of a single case to a well-controlled group based design, although the findings only serve to confirm the obvious. For example children will brush their teeth if it is made a pre-requisite for going swimming. When swimming is cancelled however, they stop brushing their teeth; but then the same is true for "putting on swimming trunks" behaviour!

Section 2 is concerned with "Shaping Self-Control" primarily through the techniques of "problem solving" (group discussion) and formulating written contracts. Two instances are given of these techniques in use; weight reduction and rebellious behaviour but experimental details are lacking probably because the authors conclude that the efficacy of these techniques are hard to evaluate when the children are taking part in a total treatment program.

"Controlling Classroom Productivity" is the theme of Section 3, but the content is solely about the effect of token reinforcement in programmed learning. This section is particularly weak as the three papers composing it are basically replications of the same study. They conclude that reinforcement affects the rate at which children progress through a programmed text but has minimal effect on their learning, at least as measured by achievement tests. The implications of these findings are not discussed by the authors and no modifications to the teaching components of the camp program are reported. In short, this book adds very little to the literature on Behaviour Modification.

ROY MCCONKEY



prevalence study, behaviour problems,
3 year olds

AN, N., STEVENSON, J. E. and GRAHAM, P. J. (1975) Prevalence of behaviour
ms in 3-year-old children: an epidemiological study in a London Borough.
Child Psychol. Psychiat. **16**, 277-287.

Summary—In an epidemiological study of the behaviour of a 1 in 4 sample of 3-year-old
en living in a North London Borough, it was found that 7 per cent had a behaviour
em which was moderate or severe. A further 15 per cent had mild behaviour
ems. There were no significant social class differences. Boys were significantly
likely to be overactive, to be wetting at night and during the day, to be soiling
to have relapsed in sphincter control after a period of being clean or dry. Girls were
likely to be fearful: there were no other sex differences in the frequency of problem
behaviour.

imipramine, enuresis,
effects

RY, J. S., DOWRICK, P. W., LAMPEN, EILEEN L. and VAMOS, MARINA, J. (1975)
ramine in enuresis—psychological and physiological effects. *J. Child Psychol.*
iat. **16**, 289-299.

Summary—Imipramine was given in a single nocturnal dose of 50 mg to 24 mostly
iatrically normal, enuretic boys for three weeks in a double-blind, placebo-
controlled, crossover trial to determine what effects the drug was having on systems
than the urinary tract. Behavioural changes, mostly of a positive kind, slight weight
tachycardia, raised diastolic blood pressure and cognitive changes occurred,
esting that the effect of the drug in children is analogous to that of the stimulants,
ast over a three week period. This would also suggest that the effect of antidepress-
in normal subjects is no different from that in depressed patients, though the
ngs of this study require replication.

aggression, imitation,
social interaction,
class differences

KNIVETON, BROMLEY, H. and STEPHENSON, GEOFFREY, M. (1975) The effects of an
gressive film model on social interaction in groups of middle-class and working-
boys. *J. Child Psychol. Psychiat.* **16**, 301-313.

Summary—Forty-eight middle-class and forty-eight working-class boys in their
year at primary school were each assigned to one of the four experimental condi-
tional groups. Situational pre-experience significantly reduced the amount of imitative competi-
tive behaviour in response to seeing the film. The effect of interpersonal pre-experi-
ence varied according to the social class of the child. Acquainted middle-class chil-
dren were less likely to be assertive; acquainted working-class children were more
likely to be assertive than were their unacquainted fellow subjects. Working-class chil-
dren were generally more competitive than the middle-class children.

visual attention,
mother-infant

COLLIS, G. M. and SCHAFER, H. R. (1975) Synchronization of visual attention
in mother-infant pairs. *J. Child Psychol. Psychiat.* **16**, 315-320.

Summary—The visual behaviour of sixteen infants and their mothers was recorded
in a novel situation containing a number of salient stimuli. There was a general tendency
for mother and infant to look together toward the same object rather than toward
different objects. Further, this visual co-orientation was found to result from mother
following the direction of the infant's spontaneous looking behaviour. These observations
indicate one way in which the mother's behaviour becomes synchronized with that
of the infant.

classification,
checkboard psychoses,
numerical taxonomy

MARGOT, BOULTON, DAVID, GAJZAGO, CHRISTINE and PERRY, DENNIS (1974) Classification of childhood psychoses by numerical taxonomy. *J. Child Psychol. Psychiat.* **16**, 321-330.

Summary—A form of numerical taxonomy was used to classify a group of 162 psychotic children on the basis of case history data supplied by the parents on the Rimland diagnostic checklist. The subjects were grouped into two classes. Class 1 included children with early onset of the psychosis who showed numerous withdrawal and aloneness symptoms and impaired communication; Class 2 included subjects with later onset of symptoms who were more heterogeneous and scattered than those in Class 1. The two classes differed significantly on 29 of the 67 attributes on which they were measured. The findings are interpreted as supporting a system of classification in childhood psychosis in terms of age of onset.

scapegoat
maternal bereavement

KEY, KAY (1975) The choice of a surviving sibling as "scapegoat" in some cases of maternal bereavement—a case report. *J. Child Psychol. Psychiat.* **16**, 331-339.

Summary—This paper presents a description of a pathological variation of the mourning process in mothers who have suffered a narcissistically damaging psychological or physical loss of a child. A surviving sibling chosen as a displacement object for the mother's feelings of guilt and self-hatred. The parent-child estrangement continues for years after the loss with an extremity and severity that often necessitates court intervention. A case illustration is presented and a concluding suggestion that counseling by available professionals at the time of the bereavement would be both economical and effective in handling this variety of pathological family scapegoating.

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